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1. "FIFTY YEARS OF PUBLIC HEALTH," ready Oct. 15.
2. HEALTH INSTITUTE, Nov. 8-12.
3. PUBLIC HEALTH SUNDAY, Nov. 13.
4. FIFTIETH ANNUAL MEETINGS, Nov. 14-18.
5. PUBLIC HEALTH EXPOSITION, Nov. 14-19.
6. STEPHEN SMITH DINNER, Nov. 17.

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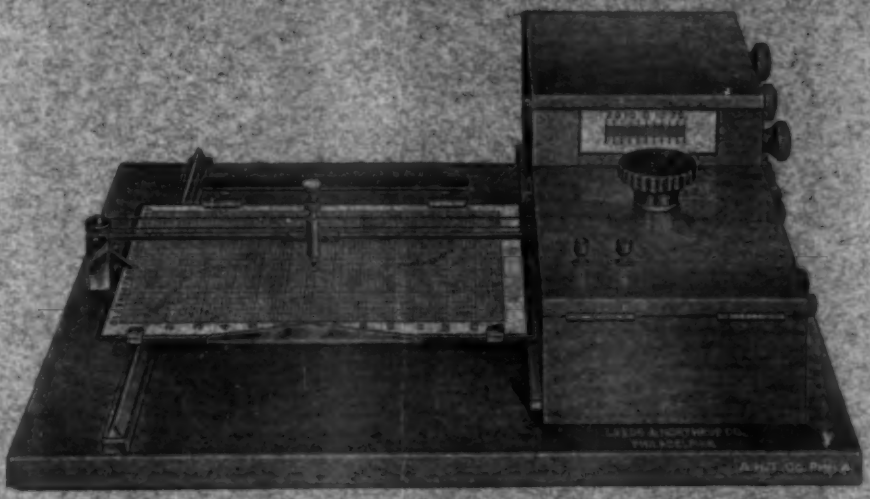

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SCHOOL HEALTH SERVICE IN NEW YORK STATE

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Read before the National Education Association at Des Moines, Iowa, July 5, 1921.

That normal wisdom is the result of normal health, physical and mental, is the basic principle of the program of health education in the schools of New York State as here outlined. The aim of course is the formation and development by children of automatic good-health habits, as well as the stimulation of normal play. The program provides for giving school credit for health improvement as well as for mental progress. Emphasis is laid upon the need of adequately trained teachers of physical education; the education of the community to assume its own responsibility for efficient administration; and the stimulation of executives and legislators to grant necessary appropriations.

"FIRST Health, Then Wisdom" is one of the mottoes of the State Department of Education. We believe that normal health is essential to normal wisdom, that physical fitness and mental fitness should go hand in hand in our educational program, that in our school health service health training should articulate and correlate closely with mental training, that as all knowledge is valuable only as it can be used in a practical and beneficial manner, so must health knowledge be so applied to our daily lives that health habits will become automatic.

Except in the control of communicable diseases, a function of the health authorities' school health service should include all of the activities in the public schools in the state having for their purpose the conservation and improvement of the physical fitness of all teachers, of all pupils and of all school attaches, and the establishment and maintenance of modern sanitary conditions of school buildings and school premises. School health service is mostly a matter of education, a problem of training in practical or applied hygiene and in sanitation. It also involves school organization and school administration. Many activities must of necessity unite in its proper organization and efficient administration. It must be made a daily part of the educational system of the state and of the community. While central supervision is essential for its standardization and guidance, every community must be made to realize and assume its own responsibility of efficient administration. As being conducted at present our school health service in New York State might well be classified under the following subdivisions:

1. School buildings and grounds.
2. Physical education.
3. Mental hygiene and diagnosis.
4. Oral hygiene.
5. Nutrition.
6. School nursing.
7. Medical inspection in schools.
8. Health education and health training.

The general administration of all these health activities in the public schools in the state is under the state commissioner of education. The third assistant commissioner of education for elementary schools is charged by the state commissioner of education with the more direct supervision of the work. Each subdivision of work is administered by a specialist appointed for that purpose by the State Board of Regents upon recommendation of the commissioner of education. The specialist in each line is held responsible for the administration of the work entrusted to his or to her direction. There is no part of the health service that does not come into cooperative articulation with every other part of the general health program. This is true in our work in the department and in the field. This plan of correlation or articulation of health activities is being adopted in many sections of the state. In several cities the board of education has established a department of school health service in which all health activities in the schools are brought into effective cooperative relation. In many places the medical inspector, the physical director and the school nurse unite their efforts in dealing successfully with postural defects. In other places we find the school physician, the dentist, the nurse and the nutrition expert dealing jointly and successfully with cases needing the combined attention of this group of specialists. Again the psychiatrist and psychologist are aided by the school medical inspector, in an intensive physical examination to eliminate, if possible, physical defects that might contribute to mental retardation. Many cases also arise where our team work is of material assistance to the Division of School Buildings and Grounds in improving sanitary conditions.

The State Medical Library, assisted by our staff of health directors, has recently compiled its second edition of a twenty-page bulletin or bibliography of "Books on Health Work in Schools." This bibliography covers every phase of our school health service. The books are furnished free to all people doing health work in the public schools in the state.

In the rapidly expanding program of health education and health training, the entire force of health workers plays an important part. In short, no part of our health program can function successfully by itself. Every phase of the work is but an integral part of the general program of school health service.

In all matters pertaining to the recognition and control of communicable diseases among school children we enjoy the closest cooperation with the health authorities of the state. An excellent bulletin on "Cooperation in the Control of Communicable Diseases among School Children," prepared by the State Department of Health, furnishes to the school authorities definite and practical instructions that are followed closely and with good results.

While adequate funds are not as yet available with which to administer properly our comprehensive health program in the State Department of Education, material progress is being made along definite lines for the improvement of health and sanitation in our schools.

1. School Buildings and Grounds

This division, as its name implies, has supervision of school buildings and grounds, of which there are more than 11,000 in the state. Except in first and second-class cities all plans for the construction of new buildings and the alteration of old ones must be submitted to the director of this division for his examination, and must be approved by the department before construction or alteration can go forward. Matters pertaining to heating, lighting, plumbing,

ventilating, seating, cleaning and school grounds come under the direction of this division. During the past school year plans have been submitted to the department for the expenditure of nearly $100,000,000 for the erection of new buildings and the alteration of old ones. While this division is rendering most valuable service to the state, it is greatly in need of further state assistance with which to increase the personnel of its staff.

Much progress has been made during the past three years in improving toilet facilities in our rural schools. Several thousand of the old insanitary and objectionable outhouses have been replaced by chemical toilets attached to and made a part of the school building. Though considerable objection has been raised to this movement in some of the rural districts we expect in time to be able to abolish all outside toilets in our rural schools and to replace them with modern sanitary accommodations.

Many of us have failed to appreciate fully the close etiological relation existing between school building conditions and the mental and physical fitness of teachers and of pupils. Many of the acquired physical defects of teachers and of school children, and much of the inefficiency of teachers and of the mental retardation of children are due to conditions existing in our school buildings. More and better attention must be given to this feature of health work in schools to the end that conditions harmful to health or contributory to retardation may be reduced to a minimum. Bright, cheerful, sanitary school buildings and grounds are powerful contributory factors to the health and mental efficiency of both teachers and pupils.

2. PHYSICAL EDUCATION

Our Physical Education Law was enacted by the Legislature of 1916. It provided that all pupils above eight years of age in all elementary and secondary schools shall receive a certain amount of attention in physical education (not less than twenty minutes in each school day) in ways to be specified by the State Board of Regents.

A comprehensive course of instruction was adopted by the Regents and has been in operation during the past four years. A new syllabus in physical education has been prepared and is about to be distributed with the approval of the Board of Regents. This revised syllabus will place less emphasis upon formal athletics and more upon the formation of correct health habits and recreation. The application of a state program of physical education to all the pupils in the schools of the state is no small undertaking. I believe, however, that during the four years that our program has been in operation much of the original antagonism to the introduction of this subject, particularly in the rural schools, has been allayed.

The state pays one-half of the salary up to $1,200 of special teachers in physical training. The law first provided that physical training teachers or physical training supervisors should be employed in all elementary and secondary schools. This was amended in 1918 to exempt schools with less than ten teachers. The law was again amended in 1921 to exempt schools with less than twenty teachers. The Legislature of 1921 in its economy program failed to appropriate funds for the employment of eighteen state supervising experts in physical education. The Legislature, however, recognized the health value of physical education, sustained the principle that it shall be taught in all of our schools, and made provision by which the excellent work will go forward. More of the responsibility of carrying on the work will hereafter be placed on local school authorities and less of state supervision will be available.

Two state-wide physical fitness tests have recently been conducted under the supervision of the director of the Division of Physical Education. Much en-

thusiasm was aroused in these tests and many excellent results were accomplished. Many of our 900 physical directors in the state have taken an active part, and have been particularly successful in organizing health clubs in schools.

Physical education indeed has come to stay. It has become an indispensable part of the health program in schools. It has been one of the greatest health stimulants in years to both teachers and to pupils. It has furnished to school health work much of the zeal, energy and enthusiasm so much needed. It has contributed to the physical, mental and moral welfare of the children of the state. It has emphasized health habits and stimulated natural play. It has stressed the health value of fresh air in the schools and in the home. It has so fully demonstrated its practical value in schools that its influences are felt today among thousands of our adult citizens. When properly articulated with the general health program in the schools it is sure to continue as a most potent contributor to both mental and physical fitness.

3. MENTAL HYGIENE AND DIAGNOSIS

An important part of school health service is the work of the Division of Mental Hygiene and Diagnosis.

The advantages and, in fact, the necessity of determining individual mental differences and intelligence levels are gaining wide appreciation and support. No program of health education or medical service in the schools is complete without adequate psychiatric and psychologic examinations.

The early recognition of pathological deviating types in the schools is of supreme importance in preventive medicine. This, however, is only part of the work of mental hygiene and diagnosis. The examination of the great group of retardation unfolds individual problems in single or combined disabilities or defects and points the way to educational treatment and vocational guidance.

The work of this division is closely allied to that of the Division of Educational Measurements. These two services often combine in group-testing surveys. The follow-up individual examinations of those obtaining low scores is carried on by the Division of Mental Hygiene and Diagnosis.

The organization and supervision of the special class for backward or mentally deficient children is a part of the work of the Division of Mental Hygiene and Diagnosis. There are at present about 450 such classes in the state enrolling about 7,000 pupils. About 275 of these classes are in greater New York, while 175 are in other parts of the state. A number of other cities are organizing special classes, and within the next few years it is expected that all the larger localities will be equipped with special classes. It is a part of the system of the State Department to receive summaries of the examination and findings of each child in a special class. These summaries followed up will furnish valuable data concerning the children who find their way into the classes and will guide the course of the work itself.

This work closely correlates with school medical inspection. In reality, the two can not be separated, as subnormalities are very frequently associated with or resultant from physical defects.

The central office personnel of the division consists of one psychiatrist, one psychologist, and one supervisor of special classes. A larger personnel is needed to meet the demands made upon the services of this force. Close coordination with the traveling clinics of the State Commission for Mental Defectives is effected, but the major portion of the work of mental measurements and diagnosis is necessarily done within the school system.

A much greater future awaits this branch of school health service, not only in further development along lines already indicated, but in mental prophylaxis or individual and group mental hygiene in a more general use of the

term. The value to the commonwealth through this sociologic application of mental hygiene is far-reaching.

4. ORAL HYGIENE

As a state school health endeavor, all work in this line is conducted through the Department of Education under the direction of a full-time oral hygiene inspector. At the present time about fifty cities and villages have established some form of dental service for school children. All degrees of service are offered, ranging from a mere examination and recommendation to the parents that corrections be made, to the most complete dental restorations and oral surgical operations. A number of schools have very complete dental equipments installed with a dentist on part or full-time service. In such clinics all emergency work is cared for. Some do gratuitous reparative work only for the really needy, while others make a small charge. About 400 dentists throughout the state have designated Children's Service Hours, when free or nearly free service is rendered in their offices to deserving cases. The great scarcity of dentists available for oral hygiene as well as the inadvisability of depending upon corrective measures is being successfully met in a few localities by the employment of dental hygienists. These young women trained in oral hygiene systematically clean the teeth of the children once or twice each year, carefully chart dental defects found and instruct the pupils in dental cleanliness. Badly neglected cases are often followed to the home where further instruction is given to parents who are frequently induced to give proper attention to existing dental defects. Dental hygienists are also qualified to carry on an important part of the health educational work by personal talks to teachers and to pupils, by schoolroom lectures, by toothbrush drills and by demonstrations. This phase of our work is growing rapidly in favor and will in time prove of even greater assistance in dealing with the great problem of dental health. The hygienist is also of material assistance in the spreading of knowledge of cause and effect, and the real benefits of preventive dental measures. She assists in placing the responsibility of prevention and correction of defects and the maintenance of oral cleanliness where it rightfully belongs, in the home. Like the school nurse, she does much to bring the school and the home into closer cooperative relation with each other.

In some of the larger places, especially where a considerable percentage of more or less dependent children attend school, the combined services of dentist and hygienist are securing splendid results.

Several counties of the state are providing dental education and care for their smaller rural districts by means of a mobile dental outfit. This is equipped with one or more dentists and hygienists who go from place to place giving such services as seem advisable.

In all of this work the department aims to assist and advise in every way possible. Standard examination blanks, record forms, educational literature and stereopticon slides are available from the State Department of Education. Lectures are given to the normal schools and to teachers' conferences. Members of the Oral Hygiene Committee of the State Dental Society have given many of these lectures and have coöperated with us in many ways in our oral hygiene work in schools. This coöperative activity among dentists, dental societies and school authorities is indispensable to accomplish the best results.

5. NUTRITION

The aim of our nutrition program is two-fold; first, educational, and second, corrective.

A. Educational—the elaboration of a graded course of study in nutrition so that every child will know what his food requirements are. In the early years when habit formation is taking place, the instruction will be concrete and capable of easy personal application. The

child will be taught his food requirements, not in terms of protein, fat and carbohydrate, but in terms of milk, cereal, vegetables, etc. In the later years he will study the quantitative aspects of nutrition. He will know his own calorie requirement and the calorie value of the common foods; he will be familiar with the protein and mineral content of foods and be taught the importance of vitamines. The conservation of digestion will be frequently emphasized. The purpose of the elementary course is to establish good dietary habits. The imparting of knowledge is only the initial means to the end.

In the high school the increased food requirements during adolescence will be taught so that during this time of rapid growth and development the body-building foods may be freely supplied. Our instruction, however, must not stop here. Boys and girls must be taught what their food requirements will be when they are men and women so that they will be able to exercise an intelligent choice of food under varying economic, climatic and social conditions. This course of study and the preparation of teachers to present it, we regard as a basic part of our nutrition and health program.

The course of study for all grades, including the high school, has been completed. The lessons in nutrition for the first six years have been already incorporated in the "Health Education Syllabus" which the State Education Department is preparing. When the individual teacher is trained to present this subject successfully, when the children translate their instruction in food requirements into good dietary *habits*, then we may confidently expect a reduction in the prevailing percentage of undernourished children.

Children really are interested in their own health, especially when it may be measured in concrete terms. As a child's weight is a practical index to his nutritional condition, it is very desirable that children be weighed frequently and that their weight be recorded. Three years ago the Federal Bureau of Education gave a great impetus to this movement by sending to every schoolhouse in the United States a classroom weight chart containing spaces for recording the children's names, ages, heights, normal weights and actual weights, month by month. In the State Department of Education we recommended that every schoolhouse be equipped with scales. To this recommendation there has been a most gratifying response. Reports made for the year 1919-20 indicate that only five cities and eleven villages have no scales.

When children are unable to return home for the noon meal, it is desirable that a nutritious lunch be available at school. The lunch is sold to the children at cost. In large cities, a lunch room manager is made responsible for the lunchroom. In smaller communities the home economics class prepares the school lunch. In the rural schools a simple hot dish, such as a cup of cocoa or a cup of soup, is prepared to supplement the box lunch brought by the children from home. The school lunch, especially in the rural communities, has had a rapid development in our State during the past few years. It has been the means of teaching many children to like nutritious dishes and has much educational value.

B. Corrective. Several rather extensive and conclusive surveys made in New York State indicate that 20% or more of our school children are 10% or more underweight. As such undernourished children need additional food it is very desirable that a mid-morning and a mid-afternoon feeding of a cup of milk and a whole grain cracker be supplied. The mid-afternoon feeding may be taken at home. The mid-morning feeding can not possibly be taken at home as the child is in school. Therefore, we have recommended that for the undernourished children, a mid-morning feeding of milk and crackers be available at school. In cities and villages the milk is delivered to the schoolhouse in

half-pint sealed bottles and the children sip the milk from the bottles through straws. The children who can afford to pay for the milk should do so. For the children who need the milk and can not afford to pay for it, funds can usually be secured from some outside organization, such as the Parent-Teachers Association and Mothers' Clubs. The milk feeding at school has been the means of teaching many children to like milk who formerly refused to drink it. In some cities nearly 75 per cent of the pupils have indicated their fondness for milk. In our state the milk feeding has been organized in twenty-eight cities and sixteen villages. These are very conservative figures. This year's report will indicate many more. In the rural schools the undernourished children are urged to bring an extra bottle of milk from home for the mid-morning feeding.

There will always be, however, a number of undernourished children whose physical condition needs special attention. Among many children who fail to gain weight are those handicapped by some physical defect. Very frequently adenoids and enlarged, diseased tonsils are the reason; sometimes the cause is less obvious and lies in some pathological or functional condition. A thorough examination by a competent physician and the correction of the physical defects found are a prerequisite to all attempts to improve the nutritional conditions of the children. Sometimes a child who fails to gain in weight may present no indications of disease but may simply be suffering from fatigue. Young children often do not know when they are tired; they play almost to the point of exhaustion. For such children a daily rest period will often prove very beneficial. When children are found to be 10 per cent or more underweight, inquiry into their dietary habits should be made. In this way one often discovers sufficient reason for failure to gain. The practice of taking tea or coffee at every meal and a pernicious use of candy and sweets are habits already established in many young children. On the other hand, a failure to make milk, cereals and vegetables a part of their daily fare is a characteristic equally prominent. Didactic instruction will accomplish little here. A method has been formulated, however, which has been demonstrated to be very effective in reforming the child's bad living habits. Organize these undernourished children into competing groups; tell each one what he ought to weigh and what he must do to reach normal weight; weigh the children weekly, and make a weight curve for each child; give some recognition, however slight (a gold star pasted on the chart), to the one who gains the most, and you have created in the children a powerful stimulus to change their ways of living in order that they may attain normal weight. This method is known as the "Nutrition Class Method." Nutrition classes for the undernourished children have been organized in a number of schools throughout the state.

A well-trained supervisor of nutrition is needed in every community. She should be a member of the school staff and work with physician, nurse, teacher and parent, to insure for all the children a well-nourished and therefore a well-built body structure.

6. SCHOOL NURSING.

There are approximately 250 school nurses under the general supervision of the state supervising nurse. These nurses are devoting their full time to health work in schools. There are nearly 500 other nurses in the state who are doing some health work in schools. When so engaged they are under the direction of the school authorities and submit regular reports to them. Five years ago there were 100 school nurses in the state exclusive of cities of the first class. About 40 of our school nurses are employed in districts with a population of less than 4,500.

Sixteen nurses are doing both school nursing and physical training in rural

communities. In these cases special preparation in physical training is required of the registered nurse, to whom a temporary certificate is issued by the department. When thus qualified to do the combined work the district employing such a nurse-physical trainer is entitled to a portion of the quota paid by the state toward the salary of a physical trainer.

All school nurses in New York State are required to be registered. It is desirable that they should have special training in public health and school administration. Definite instructions are issued to them as to their duties. They are expected to serve under the direction of the school medical inspector. They are required to submit monthly reports of their services and results obtained to the district or districts employing them. A standard form is used for this purpose.

As the services of the school nurse are largely educational, we advise boards of education to employ full-time nurses in districts having 1,000 or more children in attendance. In a community of this size there should be a full-time public health nurse and a full-time school nurse. They should assist each other in every possible manner and there will be plenty of work to keep both of them busy. By such a plan far better results will be accomplished in all forms of health work in the community.

Where only one nurse is available for all forms of health work it is essential that all of her services relating to the schools shall be under the direction of the school authorities, to whom she must submit her reports. In such cases of divided services it is equally as essential that she be under the direction of and responsible to the other agencies uniting in her employment while she is doing other than school work.

Health work in schools would be a failure in most communities without the services of the school nurse, as no attention would otherwise be given to the details so essential to the success of the work. In her work in the schools she coöperates with parents, teachers, medical inspectors, physical directors, physicians, dentists and others in the community interested in the health of children.

Her greatest opportunities for success in school health service lie in her ability to give individual attention to children with physical defects, to see that proper attention is given to such defects, and to give much of the health instruction to teachers and to pupils. To be most successful she must be tactful, intelligent, observant, coöperative and thoroughly interested in her work.

The State Board of Regents has recently established certain qualifications by which registered nurses may become health teachers. These qualifications in brief are as follows:

(a) Credentials showing completion of an approved four-year high school course.

(b) Registration as registered nurse in New York State.

(c) Credentials showing the completion of at least six semester hours in physical education or general public health service.

It is expected that our school nurses will rapidly become health teachers. They will then become a definite part of the teaching forces of the districts in which they are employed. One hundred and forty-two, or more than half, have already qualified in this respect. This plan of making our school nurses health teachers will insure to us better educated and better qualified health instructors in the future. Districts that employ nurses qualified as health teachers will receive the regular state quota toward the salary of a grade teacher.

7. MEDICAL INSPECTION IN SCHOOLS.

So far as I know, the Legislature of 1913 passed the first statewide mandatory school medical inspection measure in this country. The State Commissioner of Education and the State Commissioner of Health united in recommending the

passage of the bill. It does not apply, however, to New York City, Buffalo and Rochester, or to private and parochial schools. About 700,000 pupils, 37,000 teachers and more than 11,000 school buildings come under its provisions. No funds were available for its enforcement during the first year, and the state medical inspector of schools did not begin its administration until February 1, 1915. The law provides in brief as follows:

A. That a school medical inspector shall be appointed in every school district in the state.

We have at present a card index of about 1,500 physicians who have been appointed thus far as school medical inspectors. Full-time inspectors are employed in Albany, Amsterdam, Lockport and Poughkeepsie. In several of our second-class cities six part-time school medical inspectors are employed. The salary paid is based upon time devoted to the service. The department issues a bulletin on "School Health Service and the Medical Inspection Law," in which directions are given to school medical inspectors as to their duties. In rural communities physicians are paid from fifty cents to $1.25 for each examination. I believe better results are obtainable with one full-time school medical inspector and such special assistants on part time as might be needed. The chief medical inspector should be made responsible for the proper organization and administration of the work.

B. That school nurses and other experts in health service may be employed.

Under this provision school dentists, dental hygienists, health teachers, nutrition experts and others are also employed.

C. That every pupil on admission to school or thirty days thereafter shall furnish a health certificate each year.

During the past four years 1,753,430 physical examinations have been made by physicians in the state and health certificates issued. Our standard health certificate is urged for general use throughout the state.

D. That the local school medical inspector shall examine all pupils who fail to furnish a health certificate.

More and more of the physical examinations are being made by the school medical inspectors. Parents in general now wish this to be done.

E. That the school medical inspector can make such examinations of teachers, janitors and school buildings as in his opinion the protection of the pupils and teachers may require.

Many teachers did not take kindly to these examinations at first. Their opposition is rapidly disappearing as they are beginning to realize the importance of their own health as well as that of the pupils. Reports on school buildings are transmitted at once to the Division of School Building and Grounds.

F. That parents shall be notified of defects found and urged to have them corrected.

In our best organized systems a printed notice is first sent home by the pupil. In case the defect is not corrected in thirty days or less the school nurse visits the home. Our corrective work is increasing rapidly. Forty-two thousand, three hundred seventy-seven more corrections were reported to us during the school year 1919-20 than during the preceding year. This is an increase of 42.7 per cent in corrective work in one year.

G. That where parents are unable or unwilling to give proper attention to defects found the medical inspector shall see that proper treatment is given at the expense of the district.

We do not find it necessary to resort to this provision of the law in many cases. There is an increasing desire on the part of parents, especially the better class, to see that their children are in good health and in proper physical condition. We regard it as important that parents shall assume the financial responsibility of putting and keeping their children in proper physical condition for school.

H. That special attention shall be given

to the eyes and ears of school children under a coöperative plan of the State Department of Health and the State Department of Education.

A bulletin on "The Eyes and Ears of School Children" is issued by the State Department of Education and distributed freely among teachers and health workers. Simple rules for care and use of the eyes are printed in suitable form to paste on the inside of the front cover of one text-book of each pupil.

I. That pupils giving symptoms of any communicable disease shall be sent home at once and the health officer notified.

An excellent system of coöperating for the control of communicable diseases among school children has been worked out and is in effective operation between the State Department of Health and the State Department of Education. A special bulletin and various forms are used in this plan.

J. That the state commissioner of education may in his discretion withhold the public money from a district which wilfully refuses or neglects to enforce the law or to comply with the rules and regulations for its enforcement.

This we have not done except in flagrant cases of violation of the law. We have thought best to induce rather than to force people to enforce the law and its provisions. You can lead them in the work far better and more successfully than you can drive them.

K. That the state commissioner of education shall appoint a state medical inspector of schools who under the supervision of the commissioner of education shall perform such duties as may be required to carry out the purposes of the law.

This appointment was made on February 1, 1915.

L. That the state commissioner of education shall enforce the provisions of the law. That after consultation with the state commissioner of health he may adopt certain rules and regulations to carry into full effect the objects and intent of the law.

It is a wise provision to place the administration of this health work in schools in the hands of the commissioner of education. One department can not successfully administer activities that are carried on in the field of another department. Divided responsibility of administration creates confusion, leads to misunderstandings and lessens efficiency. There is plenty for each department to do. It is wise, however, that provision is made for consultation and coöperation with the health authorities as such is essential for the success of both departments.

The following staff is now available with which to carry on the work in the department:

State medical inspector of schools.
Assistant state medical inspector of schools (man).
Assistant state medical inspector of schools (woman).
State supervising nurse.
State supervisor of nutrition.
State oral hygiene inspector.
Instructor in hygiene.

Upon recommendation of the state medical inspector of schools and approved by the commissioner of education, provision was made in 1918 for a mental diagnostician who has charge of the Division of Mental Hygiene and Diagnosis. This work as elsewhere described is in close coöperation with the Division of Medical Inspection.

Some results accomplished through medical inspection in schools during the past four years are shown in the following table:

Total number of physical examinations made	1,753,430
These were made as follows:	
In cities and large villages	896,907
In rural schools	856,523
Percentage of registered pupils examined:	
In large cities and large villages	73.7
In rural schools	79.3

Average 76.5
Total number of defects found.....1,393,888

These were as follows:

In cities and large villages..... 645,663
In rural schools..... 748,225

102,562 more physical defects were found among rural children than among those in cities.

The ratio of frequency of defects found to the number of examinations made was as follows:

In cities and large villages..... .72
In rural schools..... .87
Total number of defects corrected...410,160

These were as follows:

In city and large village schools.....239,347
In rural schools.....170,813

Percentage of defects treated during past four years:

In city and large village schools..... 37.0
In rural schools..... 22.8

14.2 per cent more of the physical defects found among school children were treated or corrected in the cities than in the rural sections.

An analysis of some of these results, with comments, might be of interest.

Defective Vision

Total number of children found with defective vision 141,574
Total number of children treated for defective vision 54,461
Total number of children with defective vision still needing attention... 87,113
Percentage of children with defective vision treated 38.5
Percentage of children with defective vision not treated..... 61.5

Many of these children are seriously handicapped in their school work. Some had been placed in classes for retarded children. A child who does not see normally can not be expected to do normal work in school. Many of the neuroses or nervous conditions found among school children are due to abnormal conditions of the eyes.

Defective Hearing

Total number of children found with defective hearing 29,216
Total number of children treated for defective hearing 7,180
Total number of children with defective hearing still needing attention.. 22,036
Percentage of cases treated..... 24.6
Percentage of cases not treated..... 75.4

Deafness is generally acquired and not inherited. It is most often due to conditions which if recognized early and properly treated could be easily remedied. It is often insidious in its incipiency and progressive in its course. Our institutions for the deaf are filled today with children who first lost their hearing and then their speech. Hundreds of our children with partial deafness today will be totally deaf in adult life unless they receive proper corrective treatment.

Defective Nasal Breathing

Total number of children reported with defective nasal breathing.....119,174
Total number of children with defective nasal breathing treated..... 20,644
Total number of children with defective nasal breathing not treated.... 98,530
Percentage of children with defective nasal breathing treated..... 17.3
Percentage of children with defective nasal breathing not treated.... 82.7

This condition is due in most cases, as we know, to an excessive growth of adenoidal tissue. Greatly enlarged tonsils, nasal polypi and abnormal conditions of the nasal septum are also often contributing factors. With these conditions, as with most physical defects, early recognition and proper treatment are essential for successful control.

Hypertrophied or Diseased Tonsils

Total number of children reported with hypertrophied or diseased tonsils 309,510
Total number of cases of hypertrophied or diseased tonsils treated 38,779
Total number of cases of hypertrophied or diseased tonsils not treated 270,731
Percentage of cases of hypertrophied or diseased tonsils treated..... 12.5
Percentage of cases of hypertrophied or diseased tonsils not treated..... 87.5

It is becoming more and more evident to me that greater attention must be given to diseased tonsils. I am also of the conservative opinion that operative treatment is needlessly resorted to in many moderately enlarged tonsils. It is the diseased and obstructing tonsils that should demand our closest attention.

Comparatively little is being done to deal successfully with the above four conditions that contribute so materially and so frequently to physical defects among school children. The eyes, and ears, nose and throat form a region in which many of the most serious physical defects are found and for which far more could and should be done. Our medical and educational authorities should be stimulated along these lines.

Defective Teeth

Total number of dental defects reported	558,362
Total number of dental defects treated	180,636
Total number of dental defects not treated	377,726
Percentage of dental defects treated.	32.4
Percentage of dental defects not treated	67.6

Dental conditions are responsible for much ill health and retardation in school. They are the most frequent physical defects found among school children. They are among our most difficult problems in school health service. To deal with them successfully will require systematic instruction in mouth hygiene in our schools. With these as with most of the physical defects among school children our greatest opportunity is found in prevention rather than in correction.

Defective Heart

Total number of children reported with defective heart	18,629
Total number of children treated for defective heart	4,984
Total number of children not treated for defective heart	13,645
Percentage of cases with defective heart treated	26.8
Percentage of cases with defective heart not treated	73.2

Abnormal heart conditions, both organic and functional, are increasing rapidly. We are told by heart experts that 1.6 per cent of our school children are suffering with organic or functional heart trouble. This condition is said to be increasing more rapidly today than is tuberculosis. It is highly important that our school health service should be so organized and administered as to stimulate closer and better diagnostic attention and care to incipient heart conditions.

Pulmonary Conditions

Total number of children reported with defective lungs	6,756
Total number of children with defective lungs treated	2,903
Total number of children with defective lungs not treated	3,853
Percentage of children with defective lungs treated	43.0
Percentage of children with defective lungs not treated	57.0

This feature of our school health service is receiving very inadequate attention. Of the thousands of school children who are today suffering with tubercular infection, comparatively few cases are recognized. Of these, less than one-half are receiving any attention. Experts on tuberculosis tell us that 75 per cent of children become infected with the disease before the age of 15. Fortunately in most of these cases the infection is dormant though viable. Activity is often aroused by the acute exanthemata to which all children are so liable, by any illness lowering their power of resistance to infection, by malnutrition, by insanitary conditions at school and at home and by various other causes. I believe we shall never be able to control tuberculosis or satisfactorily reduce its prevalence until we are able to recognize the disease in its incipiency or preincipiency, and to so invigorate the resistance of the child as to prevent germ activity or to destroy infection. Sixteen of our cities and one village are now conducting

either open-air schools or open-air schoolrooms in which are housed and cared for approximately 1,000 school children. Under improved health supervision at school extended to the home when possible or when needed, these children improve rapidly and in six months are generally able to be returned to their normal grade. They ought to be kept under close observation for one or two years.

Defective Nutrition

Total number of pupils reported with defective nutrition	52,996
Total number of pupils with defective nutrition treated	17,788
Total number of pupils with defective nutrition not treated	35,208
Percentage of cases with defective nutrition treated	33.6
Percentage of cases with defective nutrition not treated	66.4

These figures do not begin to indicate the extent of malnutrition among school children. Several careful surveys made during the past year indicate, as stated elsewhere, that practically 20 per cent of all school children are 10 per cent or more underweight. Should this percentage obtain throughout the state, and it probably does, there are approximately 400,000 school children who are 10 per cent or more underweight. To remedy this condition is one of our biggest health problems. I believe it can and will be solved in due time. The basic necessity of normal health and physical growth of children is proper nutrition. It is absolutely impossible to deal successfully with the various phases of our health service unless proper attention is given to the nutrition of the growing child.

Nervous System

Total number of pupils reported with defects of nervous system	13,468
Total number of pupils with defects of nervous system treated	5,035
Total number of pupils with defects of nervous system not treated	8,433
Percentage of pupils with defects of nervous system treated	37.4
Percentage of pupils with defects of nervous system not treated	62.6

These figures do not indicate the real extent of the prevalence of disturbance of the nervous system among school children. When our Division of Mental Hygiene and Diagnosis becomes more efficient we shall be able to determine more accurately the mental fitness of our children, the various causes contributing to mental retardation and the best means of preventing and otherwise dealing with the same.

Orthopedic Conditions

Total number of pupils reported with postural conditions	14,646
Total number of pupils with postural conditions treated	6,637
Total number of pupils with postural conditions not treated	8,009
Percentage of cases with postural conditions treated	45.3
Percentage of cases with postural conditions not treated	54.7

Reports under this section include children who were victims of the last two epidemics of infantile paralysis, others with spinal curvatures, congenital and acquired orthopedic conditions. We hope in time to give far better attention to the aftercare of these cases by correlating more closely the services of our school medical inspectors with our directors of physical education. Much I believe can and should be done along these lines in the future.

Defects of Skin and Scalp

Total number of defects of skin and scalp reported	39,290
Total number of defects of skin and scalp treated	44,849

Our statistics report more treatments than the total number of defects. Many children are treated several times during the year for such troubles as pediculosis and other skin diseases. The printed returns, therefore, give a very inadequate idea of the service rendered by our school nurses and doctors in combating parasitic affections of the skin.

Other Physical Defects

Total number of pupils reported with other physical defects	90,267
Total number of pupils with other physical defects treated	26,264
Total number of pupils with other physical defects not treated	64,003
Percentage of pupils with other physical defects treated	29.1
Percentage of pupils with other physical defects not treated	70.9

In this group are included a wide range of physical defects not classified in the above tabulations. Speech defect is found in many of these cases. Experts tell us that over 4.5 per cent of our school children suffer with one form or another of speech defect. This feature of our work offers much encouragement along both corrective and preventive lines.

These results in corrective work have been made possible by the generous coöperation of hundreds of the best men and women in the medical and dental professions in the state, by special opportunities extended to deserving cases by hospitals and dispensaries in many localities, by a splendid spirit of coöperation by other state departments, and by many agencies interested in the betterment of the health and physical fitness of school children.

8. HEALTH EDUCATION AND HEALTH TRAINING.

This phase of our school health service is placed last as it is the most basic part of our whole program, is the most inclusive in its scope and exerts the greatest determining influence on results to be accomplished. Many of us have appreciated for years that the solution of most of our problems of health and of sanitation is an educational problem. We have all felt the need of better trained teachers to do this work. We have realized fully that the teacher must be qualified to do the major part of the health work in the room in which she teaches. It has been equally as evident to us that pupils must be taught practical hygiene and sanitation, and that such instruction must be of such a character as can be easily understood by children and easily utilized by them in the formation and development of good health habits. It is far better to teach less and to have what is taught clearly understood and properly applied to health achievements than to teach more that is poorly understood and poorly applied to the formation of health habits.

In New York state our normal schools will increase their courses from two to three years in the fall of 1922. In the rearrangement of the instruction and training to be given to pupil teachers, 60 hours will be devoted each year, or 180 hours in three years, to practical hygiene and sanitation. The state will be insistent that matriculants to normal schools and to the State College for Teachers shall be physically as well as mentally qualified to take up the work. Every student will be given practical demonstrations in school health service. Special efforts will be made to maintain a high standard of health among our pupil teachers. They will be trained to preserve their own health and to safeguard that of the pupils coming under their care after graduation. Eight of our ten normal schools are now doing more or less of this special work in hygiene and in sanitation. The New York State College for Teachers and the Oswego Normal School are now conducting an excellent course in this work. We hope and expect in a short time to have a department of health education and sanitation established and conducted in an efficient manner in all of our state institutions in which prospective teachers are trained.

A definite program has been adopted in our state for instruction to pupils in the public schools in health and in sanitation. In its administration it will be reduced to the simplest terms in subject matter taught and training required. It will be made as interesting as possible to children and of such a character as

can be utilized by them in the formation of good health habits. It will begin when the child first enters school and will continue through the high school. It will apply to every child in school. It will include daily health inspection of each pupil and will be under the direction of the teacher. It will establish a physical rating for every child on admission to school and will give school credit for health improvement as well as for mental progress. Systematic attention will be given to the correction of defects found and special emphasis will be placed on the need of keeping well. Its purpose will be to keep every child well, physically and mentally. Every community will be expected to do its best to contribute to the success of the program for better health of teachers and pupils and better sanitary conditions in schools. The teacher in charge will be held responsible for the success of the work in her room.

A practical syllabus in the simple essentials of hygiene and sanitation as outlined above has been prepared for the first six grades in our public schools. This we hope to have in operation in the early part of the next school year. It is our expectation to complete the syllabus for the upper six grades during the next ten or twelve months.

To supplement this health education work in our normal schools and in our public schools much can and should be done along certain other lines:

I. Many of our teachers now in service need to be stimulated to give better attention to their own health and to take more interest in the general program of school health service. This applies equally as well to many city, village and district superintendents. We have done as much in this line during the past six years as our small, limited staff would permit.

II. Our medical and dental colleges should be urged to give more attention to such preventive medicine and preventive dentistry as might apply to health work in schools. We endeavor to give one lecture each year to the seniors in all of our medical and dental colleges.

III. Physicians and dentists should be impressed with the importance of their part in the work and urged to contribute to its success by rendering efficient services. Special efforts are made to present our health program in schools to our various medical and dental societies in the state.

IV. Hospitals should be urged to give more and better attention to the training of their nurses in practical school hygiene and sanitation. We hope to induce our hospitals to provide special field experience to senior students in health work in schools.

V. Young women contemplating health work in schools in any capacity should be urged to take in preparation a liberal preliminary educational course. Nothing short of high school graduation should be accepted.

VI. Trustees and boards of education should be better informed as to the purposes and accomplishments of school health service. This is a big undertaking, but it ought to be done.

VII. We should inform our executives and legislators as to the services we are rendering and the results that are being accomplished that they may be better prepared to provide the necessary appropriations with which to carry on the work in an efficient manner. We have failed to do this in many instances.

VIII. A systematic, ethical program of publicity should be carried on to the end that people may know the urgent need of better attention to the mental and physical development of their boys and girls.

REPORT OF THE COMMITTEE ON MEDICAL SERVICE of the STATE AND PROVINCIAL HEALTH AUTHORITIES OF NORTH AMERICA

MATTHIAS NICOLL, JR., M.D., CHAIRMAN
Deputy Commissioner of the New York State Department of Health

Read before the Annual Conference at Boston, June 1, 1921

YOUR committee presents for consideration certain outstanding facts bearing upon medical practice and medical service at the present time:

1. The steadily increasing tendency of physicians to locate in the larger centers of population to the detriment of the rural districts.

2. The growth of specialization.

3. The increased patronage by the public of quackery under various high-sounding names, and the legalization by a number of states of the practice of pure quackery.

The inadequacy or absence of medical care in the rural districts is producing results which constitute a public health problem in which state health officers must be vitally interested. In so far as your committee can determine, this problem is one which to a greater or less extent is common to all the states. Notwithstanding the radical reduction in the number of medical men annually graduated from our schools, statistics would seem to show that there are a sufficient number of qualified physicians to attend to the need of the population as a whole if they were distributed on the basis of population. That this is not the case has been shown by numerous surveys. As a general rule, the cities are oversupplied, except during times of widespread epidemic, and the rural districts undersupplied, or, in many instances, totally without medical care, save for such as may be brought with difficulty from a long distance and at comparatively great expense. The causes for this condition of affairs have been thoroughly discussed during the past few years. Some of them have been operative for a comparatively long period; others are of recent origin. They may be briefly summarized as follows:

(a) The greatly increased requirements in academic and medical training, entailing a corresponding increase in the expenditure of time and money in order to qualify for a medical degree, so that large centers of population appeal to the recent graduate as offering an opportunity to realize a more adequate return on his invested capital than is presented by the rural districts.

(b) The physical hardships of rural practice, irregular and long hours of work, and the comparatively small fees for medical service cause the country-bred boy, who, while acquiring a medical education, has become more or less familiar with the contrasting conditions of practice in the cities, to be unwilling in many instances to return to former surroundings of which he has very definite knowledge, while the city-bred boy only exceptionally dares to embark upon a career involving conditions to which he is totally unaccustomed.

(c) The graduate of today is so thoroughly impressed with the complexity and difficulties of modern medical diagnosis and practice and the technical facilities essential to the proper performance of each that he is unwilling to engage in practise in communities where such facilities are lacking or inadequate. There is a broad field for discussion as to whether our medical schools are tending to exaggerate the dependence of all medical diagnosis and practise upon various branches of laboratory work and to

encourage the idea that a practising physician can only hope to master the pathologic conditions of and administer proper treatment to but a small part of the human body. Certainly it is a fact that the younger physicians are too frequently lacking in the power of personal observation in contrast to the physicians of a former generation, relying too much on technical aid in order to arrive at a conclusion. They put forth too little effort of their own, and are too ready to cast the responsibility for diagnosis and treatment on one or more specialists. Whatever the cause or causes, it must be admitted that specialists multiply the world over, many without the training to qualify them to be properly so-called, while the general practitioner is rapidly disappearing from the scene or becoming simply a medium for the transmission of clinical information regarding his patients to the experts in the various specialties.

(d) The desertion by the medical profession of towns and villages and the migration of this profession to cities is unquestionably a part of a psychologic phenomenon affecting all professions and business, which has been apparent for some time and which received an immense impetus during the war. Physicians who went into military service were not less affected than other professional and business men with a spirit of restlessness and vague yearning for conditions of life differing from those in which they had previously found satisfaction and profit, and in many instances have abandoned good and even lucrative practises in small places for public service or business and professional life in the large cities. Up to the present time their places have not been filled to any encouraging extent.

Other causes than those enumerated may readily be thought of, but your committee believes that those cited constitute the most important. State health department and other agencies engaged in matters affecting the public health who venture to call attention to such conditions are frequently accused of exaggeration, and attention is called to the fact that with good roads and almost universal use of automobiles not so many physicians are needed in rural districts as formerly in order to adequately care for the inhabitants. This is unquestionably true where good roads exist, but in places without number such is not the case, and in any event the argument neither contradicts nor furnishes a remedy for the fact that there are thousands of communities throughout the country even in our most populous states, in which there is not only inadequate medical service, but actually none at all. Thus, in the state of New York eighty-three such places containing a population of from four or five hundred to several thousand have sought aid from the State Department of Health in securing the services of a physician. By great effort, by advertising and personal solicitation extending over more than two years, it has been possible to furnish physicians to approximately one-half of these places—how permanently cannot yet be determined.

What may be done to meet these conditions which affect the happiness and health of a large part of the people of the country? To some extent the readjustment of economic and social forces may be counted upon to furnish a remedy in the not distant future. The slowing down of industrial activity, already in evidence, will serve to check the concentration of population within the cities, where the opportunities for gainful employment, business and professional, are even now markedly diminishing. Physicians as well as others will in increasing numbers seek the smaller communities from actual necessity when competition has become so keen as to render it impossible for them to make a living in the cities.

The building of good roads and provision for keeping them in repair and opened at all seasons of the year will not

only render practise less onerous but enable the physicians to cover a much broader territory than is now possible in many places. The mere act of placing a physician in a rural community will not, however, of necessity assure to the people of the community adequate medical care in the same sense that it is available in the larger centers of population, nor will the up-to-date and conscientious physician usually be content to remain in a place totally without the facilities for the practice of scientific medicine of which he has been taught the necessity. Your committee believes that there can be no difference of opinion among thoughtful members of the medical profession, whether engaged in medical pratcice, public health work, or both, as to the absolute need of providing for the rural districts adequate laboratory service, nursing service and hospital facilities. That the present impetus toward providing such facilities has largely emanated from state health officials and those organizations affiliated or coöperating with them is due to the fact that they alone possess the knowledge of the conditions in respect to medical service which exist throughout the state as a whole, and also because the medical profession, however wholeheartedly it may coöperate with and support innovations affecting medical practice and service, cannot be counted upon to initiate them.

Whether the facilities mentioned should be furnished in part or wholly by local, county or state funds, or augmented at times from private sources, is a matter upon which opinions will radically differ, and must be governed by local conditions as well as public sentiment. That the general practitioner—he who alone is qualified to undertake the manifold phases of routine medical practise—is fast disappearing and not being replaced by graduates of most of our medical schools is all too apparent. How far methods of teaching and increased qualifying requirements are responsible for this fact may well be given thoughtful consideration by our medical directors and boards of licensure. It is a matter of frequent comment that the medical schools are not turning out today, as in former years, men who have a just appreciation of the dignity and value of general practice and of the medical art as contrasted with that of diagnostic ability. In his passion for arriving at an exact diagnosis the modern physician too often seems to overlook, or has not been taught to value, the little niceties of medical practise, the simple remedies, attention to details however trivial, the personal touch which made the physician of a bygone day such a welcome visitor to the sick room; for, after all, a sick person not only desires to get well but even more to be relieved of pain and discomfort in body and mind. Furthermore, our medical schools fail to impress on the mind of the student the fact that the functions of the human body are so correlated that the exclusive knowledge of any small part of the body cannot make for sound medical judgment. Notwithstanding the complexities and requirements of modern medicine, they are not beyond the comprehension and attainment of the earnest student, who, while he cannot hope to become a specialist in all phases of disease, may, nevertheless, with some training in the various specialties and a thorough training in general medicine, be eminently fitted to render a diagnosis and administer treatment in the great majority of cases which may come under his care. When thrown on his own resources, the general practitioner may be surprised to find in what a large proportion of instances he will be able to do justice to his patient without calling for the services of a specialist.

The question of making the study of medicine more attractive and more generally available to a greater number of a better type of students is one which is now receiving close attention at the hands of medical educators throughout the country. It is to be hoped that modifications and readjustments in the pres-

ent requirements of preliminary and professional training, and, if possible, a reduction of expenses entailed upon the student, may bring about the desired results.

Finally, those who direct the policy of medical education would do well to study the functions and usefulness of the smaller and well-conducted medical schools. There is every reason to believe that those especially which are situated outside of large cities are a most important factor in supplying the medical needs of the rural districts. Thus, a survey of the 1,700 graduates of the Albany Medical School in New York state shows that only 174 have settled in and about the metropolitan district, and that more than one-third have taken up practise in communities of 10,000 population or less. Exact data on other smaller medical schools in New York state situated outside of New York City are not yet available, but from information thus far obtained they too are largely supplying a territory which includes small cities, towns and villages comprised within a comparatively small area. Conversely, New York City schools have not of recent years been a large factor in furnishing physicians to the districts of which the small schools are the medical center. Without dwelling upon the causes for this tendency of graduates of the smaller schools to establish themselves in localities immediately surrounding such schools, and in many instances in or near their homes and friends, the fact is of such vital importance to the solution of the rural district medical problem that such schools throughout the country if for no other reason should be fostered and encouraged and their financial difficulties met in every possible way, provided they are or may be equipped to turn out physicians who are qualified in the fundamentals of medical practise, even though they may not have had an opportunity to make such a thorough study of the various specialties as is afforded at many of the large medical institutions.

By the natural course of events, then, and by the adoption of the suggested measures in whole or part it is to be hoped that the needs of rural districts for medical service may in time be adequately met through the restoration to them of the well-equipped general practitioner, trained in the fundamentals of public health, and furnished with adequate facilities for diagnosis and treatment. There can be no doubt that this is the ideal solution of the problem, but if it should be impossible of realization, or realization be so long delayed that the existing and ever-increasing needs of the rural districts become insistent, other measures will have to be adopted.

Your committee believes that the practise of medicine is not a state function and should not be entered into by the state save as a last resort, but there can be no dispute that when absence of medical care has reached a certain point and affects a sufficient number of people, a public health problem is created, of which the state is morally bound to take cognizance. Throughout this country people in thousands of isolated communities are calling for help or are suffering and dying in silence because there is no one to listen. To meet these needs various measures have been proposed. Some have been adopted and are now functioning. Perhaps the most far-reaching and ambitious of these is that emanating from the state of New York and embodied in the so-called health center bills, which have failed of passage by two legislatures largely by reason of the opposition of the medical profession, which assumed to regard their provisions as constituting a form of or entering wedge for state medicine, and as a substitute for, and only less objectionable than so-called health insurance; and, second, by reason of the necessity for economy in financial expenditures by the state. These bills sought by means of state subsidy to place in all districts of the state where they

were needed, but only with the consent of the county and city governments, facilities for caring for the sick; hospitals with adequate medical attendance, laboratories, nursing service, school inspection, occasional clinics and consultation service provided by the State Department of Health. The facilities, except the last two mentioned, were to be furnished by localities which chose to take advantage of the provisions of the bill and avail themselves of the state subsidy. The administration of the health center, when established, was to be absolutely local, the state through the Department of Health providing part of the funds and exercising supervision only so far as to insure efficiency and good faith in putting into effect the purposes of the bill.

What the future has in store for this form of legislation cannot be predicted. The objects sought to be accomplished have received widespread approval, not only in New York state but throughout this country and even by foreign governments. There exists only a difference of opinion as to the best methods of accomplishing them.

The plan devised by Dr. Allan Freeman of Ohio sought to accomplish much the same object by a somewhat different method. It was brilliantly conceived, deserving of support, and should certainly bear fruit at some future time.

Among other means that have been adopted by various states to meet the rural needs for medical service are county health organizations, usually with a full-time health officer and necessary assistants; local health centers, so-called, consisting of a grouping of local health activities in so far as possible within the same building; subsidizing resident physicians by villages and towns; occasional consultation clinics to which local physicians may bring cases in which the diagnosis is obscure; child welfare stations and occasional children's consultation clinics; and clinics for mental hygiene and tuberculosis. Thus the problem is being worked out, it must be confessed, in a somewhat piecemeal and haphazard fashion, in different parts of the country, and it is doubtful if any general plan for efficient relief will be adopted by state governments until by a process of public health education more people, especially city dwellers, are brought to a realization of the gravity of the situation and are willing to bring pressure to bear upon state legislatures for action. The duty and responsibility for bringing this about must of necessity rest upon state health officials with such aid from private organizations as may be available.

SPECIALIZATION

This is the age of specialization—in manufacture as well as in the professions—but the term "specialist" as applied to medicine means little or nothing without a knowledge of the training, experience and personality of him who bears the title. Thus he may be and all too frequently is a recent graduate who has spent a few weeks or months in special study, or one who has given many years and acquired broad experience in the study of pathologic conditions of a single organ or group of organs. He may have an enlightened knowledge of general medicine, or know little of abnormal conditions outside of his chosen field. He may be an actual menace to the public, or one whose advice and counsel is of the utmost value. Has not the time arrived when, for the protection of the public and good name of the medical profession, medical educators and boards of licensure should require graduates in medicine to engage for a period of years in general practice before being permitted to take up a specialty, including that of general surgery, and then only after a minimum period of special study under stipulated conditions? This plan would accomplish three things. First: It would increase the number of general practitioners; second, it would enforce upon intending specialists a knowledge of general med-

icine; and, third, it would eliminate the pseudo-specialists.

As recently pointed out by Dr. Frederick R. Green in an excellent paper on the social responsibilities of modern medicine, there is urgent need for inculcating in the minds of the practising physician that medical practise may no longer be regarded as individual but as a matter which very frequently involves responsibility for the welfare of the local community. Training in the fundamentals of public health, hygiene and sanitation and social welfare is lamentably deficient in our present medical curricula. This constitutes perhaps the one specialty which should receive much more consideration than is at present accorded to it.

QUACKERY

It is a truism that people love to be fooled, but that is not the chief reason for the growth and patronage of charlatanism which may be attributed largely to the severance of the ties which formerly bound the majority of the people to their family physicians and established a relationship which exerted an influence upon the habits of life and thought of the people second only to that of religious belief, the value of which as a factor for the preservation of national stability can hardly be overestimated. There are no magnificent Cagliostros in our day and generation. The modern quack is the offspring of a pseudo-medical trust whose agents and alleged graduates penetrate to all parts of the country, and, with or without legal sanction, carry on their trade without let or hindrance. Plentifully supplied with funds and personal influence they yearly besiege the legislatures of the various states seeking recognition. A number of states have already yielded to the pressure, some to their subsequent regret.

The legal recognition of one cult leads but to the recognition of another. As one ceases to be fashionable another rises to take its place. As has been wittily said, "Already the chiropractic has taken the spine out of the poor osteopath," until it is only a question of time when various cults, each with a more or less independent board of licensure, will be sanctioned by one state after another and flood the country with a motley crew of ignorant and unscrupulous practitioners of weird, valueless and frequently harmful methods—a sad commentary on human intelligence and a grave menace to the public health.

Unless some means shall be found to stop the growth of pseudo-medical cults in the country their number will be limited only by the failure of Greek and Latin dictionaries to provide more or less descriptive terms for new methods of quackery.

There is urgently needed an authoritative definition by the highest court of jurisdiction as to what constitutes the practice of medicine. State and local health officers in cooperation with medical associations must continue to fight, even though often defeated, for the principle that no one shall undertake to diagnose or treat any human ailment who is not qualified so to do by standards of training and experience set by the educational authorities of the state. Whether a campaign of public health education on the menace of the medical cults should be inaugurated by this conference is a question which your committee recommends for earnest consideration.

(Signed)

MATTHIAS NICOLL, JR., *Chairman.*
W. S. RANKIN.
W. M. DICKIE.
ENNION G. WILLIAMS.

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THE UNSOLVED PROBLEMS OF PREVENTIVE MEDICINE

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Read before the West Virginia State Medical Association, Charleston, May 25, 1921

An inventory of the present status of the disease entities with which the modern sanitarian and clinician have to deal tempers the facile optimism of the unthinking. Whereas the infections transmitted by insects, the waterborn diseases, and certain diseases for which we possess methods of specific immunization have been well conquered, we are still unable to control the high mortality from degenerative diseases of the heart, blood-vessels and kidneys, from pneumonia and other acute respiratory infections, cancer and, to a less extent, tuberculosis. To map out the varied lines of attack upon these unsolved problems is the object of this paper.

IN ancient times civilizations were born, grew for a few generations and fell into decay. Conquests brought disease, and civilizations were obliterated by contagion. History reveals to us numerous instances in which heroes brought to their rejoicing countries, with their prisoners of war, pestilences which vanquished the victors. The Greeks were unable to cope with malaria, yellow fever and bubonic plague. The medicine of Hippocrates, the philosophy of Plato, and the science of Aristotle could not save Greece from the ravages of disease. The great Roman Empire, which promised to encircle the earth, met with a similar fate. Malaria, yellow fever, smallpox, typhus, cholera, and dysentery have been the destroyers of civilizations and determiners of history. They darkened the world in the Middle Ages, when whole nations went into coma and died.

No scientific knowledge of the causation of disease, and hence of disease prevention and treatment, was possessed by mankind until the last half century. Diseases were thought to be due to the entrance into the body of evil spirits beyond the control of man. We are just emerging from a past in which superstition and mysterious influences were invoked to explain the spread of disease. Man's progress from the marshes of ignorance to the uplands of intelligence has been slow and halting. Even at the present time only a small part of the earth is illuminated by the light of knowledge. Much of it is still covered by clouds of ignorance. Today only one per cent of the population of the world has medical care and sanitary regulations. Is it any wonder that epidemic diseases exist, and spread in times of war?

All of this is a matter of great importance, for the successful conquest of disease involves wide co-operation of all the people, and this is impossible without a fair understanding of, and confidence in, the hygienic and sanitary measures necessary for the control and prevention of communicable diseases. Even more important is the education of the public in the conquest of those diseases which our present knowledge and practice of preventive medicine have been unable to control. I mean the unsolved problems of preventive medicine: degenerative dis-

cases of heart, kidney and blood vessels; tuberculosis; cancer; acute respiratory diseases (pneumonia, influenza, scarlet fever, measles, etc.); venereal diseases, and metabolic diseases (diabetes, dietary diseases).

Typhoid fever, cholera, malaria, typhus fever, yellow fever, and hookworm can be controlled by sanitary measures. We need only to control the environment—purify water supplies, destroy insects, administer quinine, prevent food contamination—and these diseases will disappear from any country. But not so with cancer, acute respiratory diseases, tuberculosis, and degenerative diseases of heart, blood vessels and kidney. The latter diseases have been increasing rather than decreasing.

We have conquered many of the infectious diseases (typhoid, cholera, typhus, malaria, yellow fever, rabies, tetanus, diphtheria, smallpox, etc.) by organized administrative efforts at betterment of living conditions—sanitation, immunization, isolation and quarantine, and disinfection. We can conquer others by the application of these same principles. But against many of the respiratory tract infections (tuberculosis, influenza, pneumonia, measles, poliomyelitis, epidemic encephalitis, scarlet fever, meningitis, etc.), we are less successful at the present time. These latter can at present be eradicated only by personal hygiene applied to the individual, the safeguarding of one person against another.

The control of the contagious diseases transmitted by infectious droplets from the respiratory tract is made even more difficult by the existence in practically all of these diseases of so-called "germ-carriers," people who are apparently well but harbor and spread disease germs. This control of the diseased individual and the germ carrier is the most difficult problem in the prevention of communicable disease.

It necessitates early recognition of all cases of contagious disease, discovery of germ-carriers and their proper treatment and isolation, isolation and quarantine of all cases, an efficient health organization, and education of the public in the fundamental principles of personal hygiene. In diseases like influenza, scarlet fever, measles, and epidemic encephalitis, where the germ is probably a filterable virus, the difficulties are even greater, since we have no laboratory methods at present for the diagnosis of the individual case.

Unless we can discover the germ and develop an effective preventive vaccination, we have only one line of attack in some of the recurring epidemic diseases like influenza, poliomyelitis, and epidemic encephalitis. This is the eradication of their endemic foci in various parts of the world. Such work could be accomplished only by some international organization such as the League of Red Cross Societies. The task will be a very difficult one, much more so than the eradication of malaria and yellow fever by mosquito destruction, or of typhoid, cholera and dysentery by water purification and vaccination.

With the conquest of communicable diseases by the application of our knowledge of bacteriology, immunology, and sanitary engineering, the average duration of life has been greatly lengthened in the last half century. The result has been that more people reach middle life, and consequently more cases of cancer, and cardiac, vascular and renal disease occur. Formerly only the highly resistant or physically fit were the survivors. Now, with our developments in preventive and curative medicine, many weaker individuals also survive. Perhaps this is why the average expectation of life at ages beyond sixty is not so high as it was hundreds of years ago; for inherited constitution fundamentally and primarily determines how long an individual will live. (Pearl).

At any rate the chronic diseases of the latter half of life, cancer, nephritis, organic heart disease, are increasing in most civilized countries and becoming the most important problems in preventive medicine. As we have at present little definite knowledge of their causes, it may be of value to briefly review the status of our views regarding these diseases, and to suggest ways of reducing the great mortality caused by them. Not only do we lack knowledge regarding their cause, but we do not even know what part heredity plays in their production. Is it not possible that inherited diathesis is an important factor in predisposing to these degenerative and neoplastic diseases? A knowledge of the hereditary and constitutional factors determining death from various diseases might be of great value. The problem is one in biology. In this connection it is interesting to note that Dr. Pearl has found from his statistical studies on influenza that the influenza epidemic mortality was closely correlated with the three great causes of death, tuberculosis, diseases of the heart and diseases of the kidney. The severe epidemic killed chiefly those subject to these constitutional diseases which are concerned with functional breakdown of the three fundamental organ systems of the body. In what other acute diseases is there such a relationship? We cannot answer at the present time.

If the existence of constitutional disease predisposes to acute infections with a mortality higher than among the physically fit, must we not give more attention to the findings of the Provost Marshal General's office on the physical examination of several millions of men in the prime of life? Twenty-nine and fifty-nine hundredths per cent were found disqualified for military service by local boards, and an additional 8 per cent were rejected on re examination by camp surgeons. Thus, 37 per cent of our young men were unfit for military duty by reason of physical and mental defects. What must be the percentage in the higher age groups? Of the defects which unfitted over one third of all the men examined, 88 per cent can be classified under six heads:

	Per cent
Diseases of bones and joints	26
Special senses	15
Cardio vascular	13
Nervous and mental	10
Tuberculosis	9½
Defective physical development	8

Much of this physical disability begins in early life when it is preventable. Over 80 per cent of the school children examined in New York City had major or minor illnesses or defects, many curable. They were decayed teeth, enlarged tonsils and adenoids, enlarged lymph glands, errors of refraction, middle ear disease, tuberculosis, etc. Are not many of these focal infections from which germs are carried to various organs and tissues causing most cases of organic heart disease, nephritis, arteriosclerosis, generalized tuberculosis? The recent surveys made at Framingham, Mass., indicate that 70 per cent or more of any typical group of people needs medical or dental advice or treatment for serious minor ailments. The cheapness of human life is evidenced by the fact that there are over 500,000 deaths annually from communicable diseases, over 80,000 deaths from accidents, and over 5,000,000 sick.

The principal causes of death in the Registration Area of the United States in 1916, before the influenza epidemic and the war, were:

Heart disease	114,000
Tuberculosis	101,000
Pneumonia	98,000
Bright's disease	75,000
Cancer	58,000

As this area included only 70 per cent of the total population of the United States, and only 44 per cent of the total land area of the country, the deaths from the above causes for the entire country were approximately:

Heart disease	145,000
Tuberculosis	130,000
Pneumonia	125,000
Bright's disease	100,000
Cancer	80,000

Let us consider each of these unsolved problems of preventive medicine, calling attention chiefly to what can be done at present to reduce their growing mortality.

CANCER

While 77,000 American soldiers gave their lives for their country during the two years of our participation in the Great War, about 180,000 people died of cancer in the United States. Few people realize the great toll of life taken by this disease. Cancer causes at present one out of every ten deaths in people past the age of 40. It is responsible for one in every eight deaths in women, and one in every thirteen in men above that age. More people over 40 are killed by cancer than by tuberculosis or pneumonia. About 95 per cent of deaths from cancer occur in people above 35. Between the ages of 35 and 45 three times as many women as men die of cancer. It is estimated that in 1920 the cancer mortality in the United States was close to 100,000.

What a small percentage of cases of surgically curable cancer is detected in the early stages! Cancer can be cured in a high percentage of cases when seen early, for it is then a local disease. The average patient waits about twelve months before consulting a physician or surgeon. Unfortunately cancer is often not accompanied by pain, hence neglected until it has become inoperable.

Of the 90,000 deaths from cancer occurring annually we find the organs affected as follows:

Stomach and liver	35,000
Female generative organs	13,000
Female breast	8,500
Mouth and tongue	3,500
Large intestine and peritoneum	12,000
Skin	3,500
Other organs and parts	14,500

The exciting cause of cancer is at present unknown. We may look upon it as an abnormality of growth, a condition in which certain cells of the body multiply unchecked and usually serve no useful function. Perhaps certain hereditary factors cause an increased sensitiveness to mechanical and chemical stimuli in certain organs and tissues of the body. There can be no doubt that mechanical and chemical irritations play an important role in the causation of cancer. Perhaps the chemical stimuli are products of cell necrosis which, under certain local conditions influenced by heredity, internal secretions and abnormalities in early embryonic development, cause the functional energies of the cell to be transformed into growth energy. Similar growth can also be produced by chemical agents such as aniline dyes, coal tar derivatives, also paraffin, x-ray, burns, chronic inflammations. These facts suggest that there are probably many exciting influences which stimulate the cell proliferation. In certain sarcomas of lower animals a filterable virus has been obtained. In plant cancer a bacillus has been found. But in human neoplasms no micro-organism has thus far been shown to cause the disease. Given then an increased sensitiveness to growth stimuli, these chemical and mechanical agents acting for a sufficient length of time will cause neoplastic growth.

It is obvious from this brief discussion of the etiology of cancer that our only hope today is early recognition of cancer and pre-cancerous conditions, with proper surgical and radium treatment. This can be done only by education of the public regarding the early signs of cancer and the necessity of prompt and efficient treatment. Here the physician, the health officer and the nurse have an obligation to the public. They can receive aid from the National and State Societies for the Control of Cancer. The surgeon must make use of the trained pathologist and

co-operate with him in the diagnosis of his cases. The physician must recognize the cases in the pre-cancerous stage, or early stage of malignancy, or benignancy. The public health nurse is best able to advise women regarding the early symptoms and proper treatment of hard lumps in the breast, disease of the nipple, menstrual disturbances, etc.

TUBERCULOSIS

There are over 1,000,000 cases of active tuberculosis in the United States, with perhaps another million of inactive or quiescent cases. In other words, about one per cent of the population of this country is suffering with the great white plague. About 130,000 die annually of this disease. This figure represents one-tenth of all deaths from all causes, and about 30 per cent of preventable deaths. The discovery of the fact that 95 per cent of adults are infected with the germs of tuberculosis, and that at least 60 per cent of children have been infected at the age of ten makes the situation more hopeful than it seems. In other words, about 93 per cent of the adult population become infected without developing active disease. They develop a degree of immunity which protects them against subsequent infection, unless that infection be massive or oft-repeated.

On the other hand, mild infection by way of the digestive tract, or, less often, the respiratory tract, in childhood, may lie dormant for years only to produce active tuberculosis through lowered resistance caused by dietary deficiencies and such diseases as diabetes, measles, influenza, typhoid, pneumonia, etc. Massive infection in infancy or childhood is usually followed by an acute form of the disease with a high death rate, especially during the first few years of life, when no immunity exists. The same is true of races of human beings which have not previously suffered infection. In other words, massive infection, or frequent reinfection, in the non-infected causes an acute form of tuberculosis. In the previously infected (occult, or benign or quiescent infection) such infection may produce a chronic, resistant form of tuberculosis, the type most often seen in adults.

It is clear that to solve the tuberculosis problem we must discover (1) an effective vaccination in childhood which will protect against subsequent infection, or (2) a chemotherapeutic agent or specific drug that will cure the disease. With reference to vaccination the recent work of Shiga is very promising. He is using in children a vaccine of tubercle bacillus which is readily absorbed and gives only a slight reaction. It is an emulsion of a trypoflavin-fast strain of human bacillus, avirulent for the guinea-pig in doses of 1 mgr. sensitized by immune serum, and with the addition of a filtrate of the broth of erythrosin-fast culture. Very good results have been reported with this method of vaccination. Data on its prophylactic value can be obtained only after long observation of large numbers of vaccinated children. The vaccine of Calmette may also prove to be of considerable value. The experiments on cattle have been very successful. Plans are now being made to carry on similar experiments on anthropoid apes.

No chemical substance has yet been found which can be said to be a specfic cure for tuberculosis. Such an agent must not only be tuberculocidal, but it must be able to penetrate the avascular tubercle and the waxy capsule of the bacillus and retain its activity in the body. It must therefore possess a selective toxicity toward the tubercle bacillus. Arsenic compounds, various aniline dyes, iodine compounds, and heavy metals have been tried. Some promising results have been obtained

with a few chemical compounds, and the future may reveal some specific drug. The chemotherapy of tuberculosis is an unlimited field for research, with the thousands of chemical agents yet to be tried.

For the present we must be satisfied with the reduction of active tuberculosis by (1) increasing body resistance and (2) avoiding massive or oft-repeated infection.

Tuberculosis is largely a social and economic problem, one which concerns the entire community, and can be solved only by united efforts. Periodic physical examinations, strict supervision of children, proper diet, sanitary homes, pasteurization of milk and tuberculin-testing of cows, free dispensary and clinic treatment, and sanitarium treatment of advanced cases are some of the ways in which the disease must be reduced. The behavior of man is more important than that of the bacillus. The active case is a menace to the community and often infects all of his associates before his disease is recognized. He may expectorate as many as a billion germs in twenty-four hours. Unlike other infectious diseases there is often no definite incubation period, and the early symptoms are vague. Expert examination is necessary for such early diagnosis. The person with positive sputum is an advanced case, often incurable, and the chief source of spread of the disease.

ARTERIOSCLEROSIS AND CARDIOVASCULAR DISEASE

Arteriosclerosis and cardiovascular disease, although closely related, are by no means identical. We find severe chronic lesions in the arteries without the usual symptoms of cardiovascular disease, and there are cases of cardiovascular disease practically free from arterial lesions. In many instances both occur simultaneously in varying combination. (Ophüls).

The ultimate cause of both these conditions has been sought in certain chronic intoxications and infectious diseases, especially rheumatic infections, typhoid, diphtheria, tuberculosis and syphilis. Dr. Ophüls has recently thrown much light on this subject by a thorough clinical and anatomic study of five hundred complete necropsies. He determined preceding infection by clinical history and careful examination for old inflammatory lesions in tonsils, heart valves, and other known foci of chronic infection.

In the cases in which all history or signs of previous infections were absent chronic arterial disease was almost entirely absent, but appeared early and frequently in the group with infections. Only certain infections seemed important, the chronic rheumatic (septic) conditions. Not only did the septic group include practically all cases of chronic arterial disease, but also all cases of hypertension and of nephritis in which there was sufficient history.

The arterial injuries usually begin in early life and progress slowly even after disappearance of the focal infection. Chronic pulmonary tuberculosis and syphilis were rarely related to arteriosclerosis and associated conditions, unless a chronic rheumatic condition was also present. This statement does not apply to aortic or cerebral arterial disease. Arteriosclerosis and hypertension were found to be loosely related, connected only by their common relation to certain infections. At times there may be severe functional derangement of the cardiovascular system, at other times marked anatomic lesions, or both may coexist.

Both are the result of the action of toxic bacterial substances which may at times attack the arteries, at other times the kidneys, or both. The arterial disease is not the cause of the nephritis nor the nephritis of the arterial disease. We find, then, a series of cases: first, those of serious arterial involvment and little renal disease; then intermediate cases with marked involvment of arteries and

kidneys; and those with severe nephritis and little arterial disease.

If these observations of Ophüls be correct, do we not have further evidence of the dangers from focal infections of teeth, tonsils, adenoids, middle ear, appendix, etc., so well emphasized by Billings and his colleagues several years ago? Are not most of our cardiovascular-renal diseases systemic manifestations of a pre-existing focus of streptococcus or other infection which develops in early life, and should be found and removed in childhood if possible? Perhaps a hereditary weakness of the cardiovascular-renal system makes some individuals more susceptible than others to the streptococcus, or some toxic substance, as yet undiscovered, which is the cause of nephritis and cardiovascular disease.

NEPHRITIS

Time will not permit me to discuss at length the various views regarding the etiology of the nephritides. I wish only to call attention to the rapidly developing view of the infectious nature of most of these types of degenerative, inflammatory and atherosclerotic renal disease. Careful studies of large groups of human cases indicate the importance of a focal infection, usually streptococcus, as the cause of the disease. In childhood nephritis usually follows scarlet fever, tonsillitis, erysipelas, endocarditis, rheumatic fever or chorea, in all of which the streptococcus undoubtedly plays the most important part. These are not the only causes, however. The nephritis may present itself months or years after a focal infection when the focus may no longer be present, and when if present its removal may be of slight value. We have already called attention to the probable independence of the cardiovascular lesions except for their common etiology.

The removal of recognized foci of infection as early as possible, prompt and efficient treatment of all acute infectious fevers (especially those accompanied by streptococcus infection), and dietary restrictions to decrease the amount of renal work and afford rest and opportunity for repair will do much to prevent renal disease. The preventive treatment of chronic nephritis is at present undeveloped because of our lack of knowledge of the etiology and factors influencing the progressive development of renal lesions. Here also removal of foci of infection during early life may prove to be the most effective preventive measure. After the foci have existed for some time even removal may fail to stay the progress of the disease.

PNEUMONIA

Pneumonia kills about 100,000 people annually in the United States. In the four months of the influenza epidemic (September to December, 1918) 500,000 people died in this country from pneumonia and influenza. The disease is usually caused by the pneumococcus, types 1, 2, 3, or 4. These can be differentiated by agglutination. This differentiation of types by obtaining the organism from the sputum is now of greater importance in the epidemiology as well as treatment, and possibly in prevention.

For type 1 pneumonia we have a specific immune serum which if administered in proper dosage early in the disease will cure most cases. Unfortunately we have no effective serum for the other types. With the exception of the use of type 1 serum the treatment is still largely symptomatic. Foreign protein therapy may be of value in certain cases, but must be used with caution.

In pneumonia prevention the mixed pneumococcus vaccine has already been shown to be of decided value. The work of Lister in South Africa and of several American physicians in this country has demonstrated its value in prevention in a certain percentage of those vaccinated. The value of influenza vaccines was no doubt due to their pneumococcus content.

The work of Blake and Cecil on experimental production of pneumonia in

monkeys by intra-tracheal injection of organisms has greatly increased our knowledge of the pathology and modes of infection in this disease. The necessity of isolation of all cases and identification of carriers in prevention is of course well recognized.

DIABETES

Let us discuss briefly what can be done to prevent this disease of metabolism. It is estimated that there are 500,000 diabetics in the United States. Joslin has recently called attention to the relation of obesity to diabetes and found from his study of 1,000 diabetics that diabetes is largely the penalty of obesity. The overweight person is at least twice, and at some ages forty times, as liable to the disease as the person of average weight. Maintenance of average weight will prevent more than half of all the cases of diabetes in this country. Education by the medical profession along this line should be carried on vigorously. Cases that exist should be diagnosed as early as possible. This can be done by routine urinalysis. Early dietetic treatment is necessary to reduce the mortality from this disease and its sequelæ.

We shall not be able to consider at this time the other metabolic diseases, or the dietary deficiency diseases, such as those due to deficiency of vitamines, etc.

SUMMARY AND CONCLUSIONS

We have seen that whereas the infectious diseases transmitted by insects, the water-borne diseases, and certain diseases for which we possess methods of specific immunization have been conquered, we are still unable to control the high mortality from degenerative diseases of the heart, blood vessels and kidney, cancer, pneumonia and other acute respiratory infections and tuberculosis.

In the cardiac, vascular, and renal diseases chronic septic (rheumatic) processes seem to play a most important part. They can no doubt be greatly reduced by early removal of focal infections.

In cancer, the cause of which is still unknown, we must depend upon education of the public, removal of precancerous conditions, upon surgical treatment, and the use of radium in selected cases.

In pneumonia and other acute respiratory infections, control of the individual patient and search for carriers with proper isolation and treatment offer us at best little hope in reducing the high mortality from these diseases. Perhaps vaccination will be the solution of the problem, as favorable results have already been obtained in pneumonia.

In tuberculosis, protection against massive or oft-repeated infection, especially during infancy and childhood, is most important. The environment of children must be made safe from tuberculosis infection. Mild infection in early life seems to confer a distinct immunity to subsequent disease. But inactive infection may become active disease unless a high body resistance is maintained at all times. The ubiquity of tuberculosis infection, with only one per cent of active cases in the population, indicates a high resistance to ordinary infection. Perhaps a vaccination will be discovered which will increase this immunity. The work of Shiga and Calmette is very promising along this line. A chemical substance which will cure the disease may some day be found.

Lastly, better medical service rendered to the public through the establishment of fully equipped health centers in every community and available to the family physician for the diagnosis and treatment of disease, and periodic physical examinations; the organization of group medical clinics in larger centers of population for more expert diagnosis and treatment; further development of federal and state forces in disease prevention; and the promotion of scientific research and investigation will do much toward solving these problems in the future.

Modern medicine is becoming more and more a social service concerned with

the prevention of disease, prolongation and betterment of life, improvement of physical health and efficiency through organized community efforts. The physician must uphold his reputation as the leader in this work. He can do this only by constantly acquiring knowledge. He must have the spirit of scientific investigation.

Let us adopt as our motto: "Every ill that can be relieved shall be removed."

The wisdom of Harvey, Leeuwenhoek, Jenner, Pasteur, Koch, Reed, Ross, Ehrlich, Behring, Wright, Röntgen, and many others has secured for us a greater measure of health and longer term of life. Let us do as well for the next generation.

Let us live for the present and the future.

Not myself, but the truth that in life I have spoken,
Not myself, but the seed that in life I have sown,
Shall pass into ages—all about me forgotten
Save the truth I have spoken, the things I have done.

□

REPORT OF COMMITTEE ON FULL-TIME HEALTH OFFICER LEGISLATION

EUGENE R. KELLEY, M. D.,
Commissioner of Public Health for Massachusetts, Boston, Mass.

Read before the Conference of State and Provincial Health Authorities at Boston, Mass., June 1 and 2, 1921.

AS chairman of the Committee on Full-Time Health Officer Legislation of the Conference of State and Provincial Health Authorities I have the honor to submit the following report:

Attached is the form of questionnaire sent out to the provinces and states and territories. Replies have been received from all states except Maine and South Carolina, and from all provinces except Manitoba and New Brunswick. Of the territories, replies were received from Porto Rico and Alaska, but none from the Philippine Islands, Hawaii and the Canal Zone.

Thirty-three of the forty-six states replying stated that no legislation of this nature had been introduced during the past year. Four of this number reported that they had had no session of the Legislature during the past year.

Five states reported that legislation had been introduced but failed of passage for various reasons. These states are Arizona, California, Indiana, Minnesota and West Virginia.

In two states legislation was introduced and was still pending at the date of the last reply to the questionnaire. These states are Illinois and Michigan.

Legislation was enacted in six states as follows:

Mississippi reports that legislation has been passed permitting counties to create health departments and appoint health officers.

New Mexico reports that an amendment has been added to the health law which permits counties and incorporated towns to levy a tax of one-half mill on the dollar for health purposes. This legislation was further amended in 1921. Five counties out of thirty-one have already created full-time health departments which include the incorporated towns in each case. A further amendment of this year provides that a full-time health officer shall meet certain requirements as to training and experience in public health work.

New York reports that no purely full-time health officer legislation was introduced during the last session of the Legislature, but that two bills bearing indirectly on this subject were introduced

and have become law: (1) "An Act to Amend the Public Health Law in Relation to General Health Districts," and (2) "An Act to Provide for a Department of Public Health in and for Second and Third Class Cities."

Tennessee reports that legislation has been enacted enabling counties to establish county departments of health in charge of full-time health officers, with sanitary inspectors, visiting nurses and clerical assistance.

Wisconsin reports that legislation has been enacted providing that all cities in the state of 25,000 population or more shall provide for a full-time health officer.

Wyoming reports that a bill providing for a whole-time health officer was passed at the last session of the Wyoming legislature, to take effect May 20, 1921.

Of the provinces, replies were received from Alberta, British Columbia, Nova Scotia, Ontario, Quebec and Saskatchewan.

No replies were received from Manitoba and New Brunswick.

British Columbia, Nova Scotia, Ontario, Quebec and Saskatchewan reported that no legislation had been introduced this year.

Alberta reports that legislation had been introduced guaranteeing the permanency of tenure for a full-time health officer, but was defeated.

Of the territories, Porto Rico reports that no new legislation for full-time health officers was submitted to the Legislature.

Special note is made of the replies from Pennsylvania, Delaware, Alberta and Nova Scotia, from which the following quotations are taken:

Pennsylvania: "No legislation bearing on full-time health officers was introduced during the present year. This matter is left entirely to the discretion of the commissioner."

Delaware: "A bill was introduced by the state board of health uniting the work of cannery inspector and food inspector. This bill was defeated as it provided for an increased appropriation."

Alberta: "Legislation was introduced guaranteeing the permanency of tenure for a full-time health officer, but was defeated on the ground that since the salary is paid by an elected body, such body should decide terms of employment."

Nova Scotia: "No new legislation with regard to full-time health officers has been submitted to our Legislature during the present year. Through a peculiar inadvertence the legislation we had—permitting groups of neighboring towns to unite in the appointment of a full-time medical officer—was struck out, but will be restored during the present session."

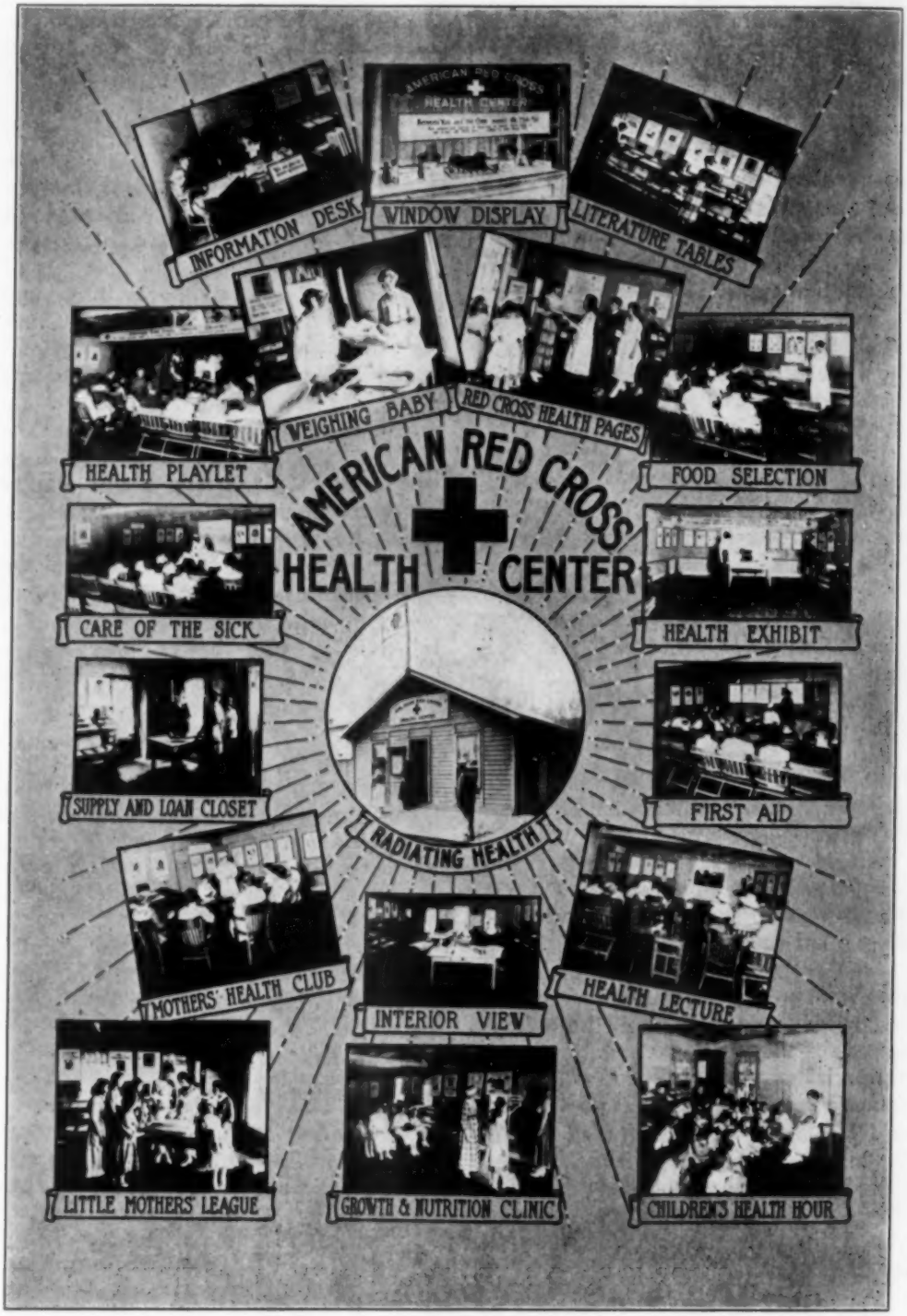
Owing to the negligence of four officers, those of Maine, South Carolina, Manitoba and New Brunswick, to reply to two repeated requests, it is impossible to make a complete statement of results in this most important health departmental matter for all of North America north of Mexico.

It is recommended that this committee report on alternate years only, inasmuch as in many states the Legislature meets biennially and not annually.

Respectfully submitted,
(Signed) EUGENE R. KELLEY,
W. S. LEATHERS,
JOHN T. BLACK,
JOHN S. FULTON.

SAVE THE NEWS LETTER

Members are urged to watch for the NEWS LETTER, the three numbers of which preceding the Semicentennial will all contain material of great importance to those who expect to attend. If you have not received your August-September NEWS LETTER, write for it now. It contains a coupon entitling you to reduced railroad fare, and information on hotels.



HOW A HEALTH CENTER FUNCTIONS

INFANT MORTALITY RATES FOR PARIS

THOMAS J. DUFFIELD
Statistician, Commission for the Prevention of Tuberculosis in France

FOR some time the writer has been impressed with the fact that the ordinary method of computing the infant mortality rate,

$$\frac{\text{Deaths under one year}}{\text{Living Births}} \times 1000$$

was not applicable to the City of Paris, first, because of the great number of children placed *en nourrice*[1] outside of the city, and second, because a child born alive is recorded as stillborn if the child has died before the declaration of the birth is made at the registration office.[2]

Although the procedure is reasonable to one not acquainted with local conditions, it is to be regretted that the Quarterly Returns of the Registrar General of England and Wales, which is considered a reliable record of vital statistics and is quoted by public health authorities throughout the world, published without note (Return No. 288, 31 January, 1921), an infant mortality rate for Paris for 1920, based on the living births and the deaths under one year in the city, but taking no account whatever of the children leaving the city *en nourrice*.

It is believed that an infant mortality rate for Paris more nearly approaching the truth is obtained if, instead of employing the ordinary method, the following formula is used:

$$\frac{\text{Deaths under one year}}{\text{Living births—Infants placed } \textit{en nourrice}} \times 1000$$

It is evident that this formula does not take into consideration the children brought into Paris from other departments, nor does it take into account ordinary migration to and from the city. It is generally believed that this movement is away from rather than toward the city and that differences in the infant mortality rate due to this factor would be practically negligible.

However, crude and corrected infant mortality rates for Paris computed first in the ordinary way, and second, based on the number of children remaining in Paris are here given for 1920 and the ten preceding years:

Infant Mortality Rates—Paris

	Crude Rate	*Corrected Rate*
1910	98	142
1911	118	171
1912	103	148
1913	99	145
1914	110	132
1915	124	153
1916	101	133
1917	96	128
1918	125	160
1919	104	129
1920	98	119

It should be explained that the number of children placed *en nourrice* is an official figure obtained from the declarations required of each *placement* at the time the birth is reported. Without a change in the regulations it will be impossible to correct the infant mortality rate of Paris for cases falling within the second group (now declared as stillborn), but recently, M. Huber, Director of the French General Statistical Bureau, has published[3] the results of his study of Infant Mortality by *départements*[4] in France during 1919. In this study correction in the infant mortality rate has been made for the removal of children of the first group from one *département* to another by referring to the *département* of birth all deaths in France under 1 year of age, regardless of the place of death.

A translation of this paper is reproduced here:

"FRANCE: INFANT MORTALITY BY DEPARTEMENTS

"Infant mortality rates are determined ordinarily on the basis of the number of deaths during a calendar year of children under one year of age, per 1000 living births for the same period. In the *Bulletin*[5] of October, 1920, page 4, results (provisional figures) of the calculations thus made were shown for the 77 non-invaded French *départements* for the years 1913 to 1919.

"This calculation, acceptable for an entire country, cannot be employed without discussion when one wishes to apply it to an administrative district as small as a *département*, because of the removal of children placed *en nourrice* outside of the *département* of birth. For example, in Paris, before the war, approximately one-third of the new-born (15,000 out of 45,000) were placed *en nourrice* outside of Paris, and obviously increased the number of deaths from 0 to 1 year in the *départements* where they were placed.[6]

"In order to make a correct calculation of the infant mortality, it would be necessary to refer the number of deaths under 1 year registered in a *département* to the number of living births in the same *département*, increased by the number of new-born brought into the *département* and diminished by the number of infants born in the *département* but having left it shortly after birth.

"Lacking the necessary elements for these complete calculations, we have tried, however, to determine more exact Infant Mortality Rates by classifying the certificates of death from 0 to 1 year in each *département* according to the *département* of birth. It has been possible, then, to make a double disposition of the deaths under 1 year in each *département* (see Table I): First, the total number (B) of deaths under 1 year has been divided into two categories, namely, (a) children born in the *département*, and (b) children born in another; and, second, in referring to the *département* of birth, the deaths under 1 year registered in other *départements* throughout the country, we have obtained the total deaths (R) under 1 year of the children born in a *département*, whether they died in the *département* where they were born or in another.

"We can calculate then per 1000 living births; first, a crude rate of infant mortality—deaths under 1 year registered in the *département* per thousand living births in the *département*, and, second, a corrected rate, deaths under 1 year of children born in a *département* (regardless of where the death was registered) per thousand living births in that *département*.

"This calculation has been made for the 77 non-invaded *départements*, but we have shown in Table I only the results for the Département of the Seine (Paris and vicinity)[7] and the *départements* where a great number of children born in the Département of the Seine are placed *en nourrice*. These are composed in the great majority of the *enfants assistés*[8]. It will be seen that the differences between the crude and corrected rates are important.

"Naturally the mortality rate of infants born in the Département of the Seine is found to be greatly increased: from 103 to 134 per 1000, the deaths of infants born in the Département of the Seine and registered throughout the rest of France being charged against the births of the Seine. Inversely, the *départements* figuring in Table I which receive *en nourrice* a large number of the children born outside these *départements*, chiefly from the Département of the Seine, have a corrected rate much lower than the crude rate for the *département*. For the Nièvre, for example, the rate of infant mortality is thus lowered from 199 to 111; for the Sarthe from 193 to 153; for the Seine-et-Oise from 142 to 101, etc."

TABLE I—DEATHS UNDER 1 YEAR IN 1919 IN A FEW "DÉPARTEMENTS"

		Deaths under 1 year registered in the département			Deaths under 1 year born in the département			Rate of mortality per 1000 living births	
	Living Births N.	Born in the same	Born in another	Total B.	Dead in the same	Dead in another	Total R	Crude $\frac{B}{N} \times 1000 = b$	Corrected $\frac{R}{N} \times 1000 = r$
Seine	57,961	5,859	101	5,960	5,859	1,887	7,746	103	134
Allier	3,406	329	145	374	329	14	343	139	101
Eure-et-Loir	3,453	372	138	510	372	7	379	148	110
Loir-et-Cher	3,053	315	69	384	315	10	325	126	107
Loiret	4,392	422	64	486	422	7	429	111	98
Nièvre	2,655	287	240	527	287	10	297	199	111
Orne	3 684	404	113	517	404	16	420	140	114
Sarthe	5,605	836	248	1,084	836	21	857	193	153
Seine-et-Marne	4,084	371	122	493	371	12	383	121	94
Seine-et-Oise	10 294	989	471	1,460	989	51	1,040	142	101
Yonne	2,955	352	63	415	352	7	359	140	122

FOOT NOTES

(1) The term *en nourrice* does not imply that children are always placed with wet-nurses. As a matter of fact only a very small proportion of these children continue breast feeding.

(2) The French law requires that births shall be reported within three days of the date of birth. This requirement is obeyed except for an infinitely small number of births.

(3) *Bulletin de la Statistique Générale de la France,* January, 1921, page 159. Librairie Félix Alcan, Paris.

(4) Continental France is divided into 90 *départements* (including Alsace-Lorraine). A *département* is the administrative subdivision of the government corresponding most nearly to the county in England and the United States.

(5) *Bulletin de la Statistique Générale de la France,* October, 1920, page 4. Librairie Félix Alcan, Paris.

(6) To give an idea of the extent of this practice of placing children outside of the city of Paris, the following figures, taken from the *Weekly Bulletin of the Bureau de Statistique Municipale,* are quoted:

Year	Living Births	Placed *en nourrice* outside Paris	Infant deaths (0-1 yr.) in Paris
1910	49,275	15,406	4,833
1911	48,962	15,121	5,766
1912	48.277	14,661	4 986
1913	48.746	15,354	4,842
1914	44,943	7,352	4,957
1915	30.360	5,689	3,784
1916	28,271	6,834	2,853
1917	32,830	8,258	3,152
1918	30,417	6,606	3.810
1919	38,992	7,488	4,063
1920	55,813	10,122	5,444

(7) It should be emphasized here that the Département of the Seine is not identical geographically with Paris. In addition to Paris there are 18 separate municipalities in the Département. The total population of the Seine, March, 1921, was 4,411,446, while that of Paris was 2,906,472.

(8) *Enfants assistés* is the term applied to foundlings, abandoned children, and others raised at the expense of the government.

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THE PUBLIC HEALTH EXPOSITION

So many big features will crowd the days of the Semicentennial visitor that he is in danger of forgetting one of the biggest of them all—the Public Health Exposition, which will occupy 30,000 square feet, two entire floors, of the Grand Central Palace, Lexington Avenue, New York City. Both educational and commercial exhibits will have space, and the exposition will be open to the general public. Dr. C. E. North, 30 Church Street, New York, is director. Detailed announcements will be made in the NEWS LETTER preceding the meeting.

THEORIES CONCERNING THE CAUSATION OF DISEASE

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[The following article was prepared some years ago by the author with the aid and assistance of Professor Selskar M. Gunn. It was intended to be one of a series of essays to be successive chapters in a volume for laymen treating in a general way of the problems of public health. This project, disturbed by the war, is not now likely to be completed, but since the presentation here is novel and represents considerable literary work, and is furthermore instructive, it has been taken by the JOURNAL for publication.]

THE DEMONIC THEORY

Man's common belief as to the causation of those "thousand ills which human flesh is heir to, has always been fairly compatible with the general state of human knowledge. It has always been pretty well related to the state of civilization and learning of the race or country. The savage of today and the races of antiquity are at one in their reliance on what is often spoken of as the demonic theory.

According to this theory, disease was produced by demons, one or more evil spirits had fixed their abode in the victim's body. The sick man was possessed of a devil. It was therefore logical to attempt to cure him by a system of incantation and sorcery, something calculated either to drive or coax the demon out. Disease was conceived of, not so much as a condition of the body itself, as an entity apart from man which dwelt with, or even replaced, the soul within its ordained temple. Savage or primitive imagination pictured a great world of things unseen and supernatural and from this world the fathers of the race drew the characters who were assigned to play the villains' parts in the great struggles of the mortal body with its invading maladies. The association of religion with primitive medicine was very close. The priest or man of religion was usually the medicine man or doctor whose good offices were required for exorcising the evil spirits of disease.

Much has been written of the history of primitive belief in the demonic source of disease and of the superstitions connected with its cure. These superstitions and the practices they direct were often very fantastic and interesting. Unhappily some of them still survive in many of the most highly civilized countries. In our own country a great many of these beliefs are still practiced among the laity, especially among the illiterate of the more remote country places. Magnetic rings are still worn for the cure of rheumatism. Dried potatoes and horse-chestnuts are still wearing holes in many a trousers pocket, parents are still making their children the object of their little friends' ridicule by compelling them to wear bags of assafoetida to keep off communicable disease. Breaking a mirror, beginning a journey on Friday and a host of other ridiculous, inconsequential notions about ill luck are still unexploded in the minds of a great many people. Successful men of business and refined modern women, well informed about most things, continue to believe charlatans and quacks simply because they are not informed as well upon the subject of their own bodies, how they function and what will interfere with those functions, as they are about the workings of an automobile or even the principles of international law.

THE PUNITIVE THEORY

The association of religion with the cure and treatment of sickness probably had much to do with the evolution of what we may call the punitive theory of

disease; the belief that one's attitude toward the deity was responsible as a cause of sickness. From a period centuries prior to the Christian era down to the present time, there have been good people who have believed disease was a punishment meted out by an outraged God for the sins of the individual or the race.

The old Testament bears evidence of the currency of this notion among the Hebrews of Bible time. We are told that Jehovah is a jealous God, we find him recorded as rewarding his chosen people in divers ways and as sternly punishing them in his displeasure. In II Chronicles, Chapter XXI, there is related the story of a terrible plague in which the whole nation suffered for a sin of David and which was stayed only by David's repentance and the making of a sacrifice.

Following out this theory an afflicted individual or a plagued people instead of cajoling evil spirits, sought to be healed by propitiating the deity. Piety, repentance of sin, prayer and sacrifice were esteemed to be of great value. As we have seen, David built an altar and made sacrifices. Jehovah saw that he had turned from evil, the divine wrath was appeased and the plague was stayed.

In accepting this record of Hebrew life and religion literally, the early Christian Church quite logically found a place for the punitive theory of disease. Special prayers and services, special rituals and even special saints, who should intercede for the victims of disease, came into being. The heated religious controversies of the Dark Ages are full of references to this subject. The best means of petitioning relief from disease was regarded as a religious question. The terrible outbreaks of bubonic plague which ravaged Europe in the late mediæval and early modern period gave the church an occasion for directing its energies to this matter.

THE MIASMATIC THEORY

After long years we begin to emerge from the "thousand years without a bath," which made up the brilliant Age of Chivalry, and begin to hear more about the miasmatic theory of disease. That curious notion of vapors or miasms coming up out of the ground and striking down the people with disease was not really born at the time above mentioned. It had been suggested long before by the Greeks and the Romans. After being buried for centuries under the stupendous weight of middle-age superstition and ignorance, this old idea began to revive. The people, who believed in this, said that the air arising from certain kinds of ground, especially low, swampy areas, was a cause of disease. Certain places were thus given a very evil reputation, because the ground was said to exude some invisible, insensible vapor, some miasm, which produced disease. Such places were spoken of as unhealthy spots. Not only was the air of swamps misasmatic but so also was night air. The clever fellows who invented miasms have been the unwitting cause of much trouble on the part of modern physicians, who cannot get out of their patients' heads the persistent old superstition that, if they breathe the night air, all sorts of trouble will result. The fact that malaria was prevalent in the vicinity of swampy land, and some evidence that people who ventured out in these swampy places were more likely to get the disease, lent plausibility to this theory and it has been an almost hopeless task to dislodge it from the minds of a great many people. It was the belief in the air as the causative agent that gave malaria its name, the Italian for "bad air." Somewhere in the inexhaustible fund of interesting information which he drew upon so freely to supplement his vivid imagination, Shakespeare found this miasmatic conception of disease, for, in his Julius Caesar he makes Portia say to Brutus, who has been walking in the garden in the small hours of the night,

"Is Brutus sick? and is it physical
To walk unbraced, and suck the humours

Of the dank morning? What! is Brutus sick,
And will he steal out of his wholesome bed
To dare the vile contagion of the night,
And tempt the rheumy, unpurged air?"

This quotation expresses the whole idea of miasms, namely that the air is contagious, that the "contagium" or cause of disease is in the very air itself.

The wise old heads who invented miasma were really beginning to be scientific after all. At least, they were searching for a material, natural cause, instead of blaming it all on either a god or a devil. They were great, in that they had the fundamentally important conception, that something cannot come out of nothing. Even the suggestion that night air in low swampy places was disease-laden was not so bad in one sense. The old physicians simply reckoned without the active anopheles who is so particularly blood-thristy at night.

These three conceptions of the origin of disease are the ones that have been practically universal. They are the ones that have taken their place in the popular fancy and have woven themselves into the history of nations, that have left their mark upon the folk lore and the earlier literature of many peoples.

BEGINNINGS OF MEDICINE

The lore of medicine had its own sequence of more professional theories regarding the etiology of disease, generally more complex, but often no less fantastic and artificial in the light of science, as we now regard science, than the more simple beliefs which held sway in popular belief. This is not a history of medicine but a brief reference to some of the great names in the chronicle of the healing art and some of the theories which these men stand for cannot be omitted.

If we hark back to Greek mythology we think naturally of Aesculapius, the physician to the gods, and of his daughter Hygiea, the Goddess of Health, whose name is now applied to almost everything that stands for the prevention of sickness and the preservation of the human species in a state of health. It did not take the invention of modern scientific apparatus or the discovery of bacteria to bring forth some very creditable theories. Men of learning always have and always will exercise their minds with speculation concerning those things from which the dark curtain of the unknown has never been drawn aside. When "demos" pronounces that this is the end, the scholar, the man of real genius, will say, "They think this is the end, I will find out what lies beyond."

On the Pillars of Hercules the ancients wrote, "Ne plus ultra," but there was one who refused to believe that there was the end of the world. Science has had many a Columbus. When the physicians of 50 years ago said, "spontaneous generation," Pasteur already saw beyond the reach of their vision, into the world of virus ferments. When men of inquiring mind cannot lay hold of facts with which to build they are apt to raise a structure of fancy more or less logical. This is what happened in medicine and upon this sort of basis grew much of the art of healing.

In the Golden Age of Athens, contemporary with Pericles and the illustrious fathers of so many arts, lived Hippocrates, "Father of Medicine." In that early time we find this man already recognizing disease as a process within the body, a process dependent upon natural causes and subject to natural laws. Hippocrates (460-370, B. C.) instituted personal treatment in the place of exorcising spirits, sacrificing to unresponsive deities and other "absent treatment." The Hippocratic treatment and the Hippocratic theories had little real science in them; they were speculative theories as we may readily understand. There was nothing of anatomy behind them worth the name; there was no knowledge of physiological function beyond that gathered by every man from the casual observation of the "modus

operandi" and habits of his own bodily organs, but they were valuable as the opening wedge for the recognition of natural as opposed to supernatural causes.

GALEN AND THE FOUR HUMOURS

The theoretical structure begun by Hippocrates, or at least based upon his observations, was elaborated and described by Galen (331-201 B. C.) and is known as the theory of the four humours. It was conceived that there are in the normal body four humours in a definite amount and proportion. Any excess of any one or any irregularity in their distribution disturbed the fine adjustment of the "going machine" and health was transformed to sickness. These humours were blood, phlegm, yellow bile and black bile. The idea of the humours is the real reason for the practice of blood-letting. It is hard for us with our present wonderful (though still grossly inadequate and incomplete) knowledge of human physiology and pathology to conceive a more inane method of treating a man already weakened with disease than this indiscriminate practice of blood-letting.

SYDENHAM'S TEACHINGS

Sydenham (1644-1689), often called the English Hippocrates, first gave us the important thought that there are different specific things which should be held responsible for different diseases. Sydenham held that disease was the result of the effort made by the body to throw off, to expel these *materies morbi*, the dead materials within it, which had made the trouble. The important result of Sydenham's studies was that a little close intelligent observation upon the part of the doctor is worth more than any amount of dosing administered in blind observance of a preconceived notion. It was a step away from the four humours and from other later, but quite as artificial, theories. In short, Sydenham did much to teach the medical profession the value and importance of "studying the case." Sydenham's theory, more or less mixed up with the really inconsistent four humours, probably had much to do with the long popular belief in "peccant humours of the blood," the quaint notion which asserts that a rash or eruption must "come out" and the more it comes out the better for the patient. Dr. Woods Hutchinson describes this stage of medical progress in connection with a discussion of certain of the diseases of children in the following words. "They were regarded not merely by the laity but by grave and reverend physicians of the Dark Ages as a sort of necessary vital crisis peculiar and appropriate to each particular period of life—a sort of sweating out and erupting of 'peccant humours' of the blood, which must be gotten rid of or else the individual would not thrive. Incredible as it may seem, so far was this idea extended that the great Arabian physician-philosopher, Rhazes, actually included smallpox in this group, as the last of the 'crises of growth' which had to appear and have its way in young manhood or womanhood." Quaint little echoes of this simple faith still ring in the popular mind, as, for instance, in the wide-spread notion about the dangerousness of doing anything to check the eruption in measles and cause it to "strike in." Any mother in Israel will tell you, the first time you propose a bath or a wet pack to reduce the temperature in measles, that if you so much as touch water to the skin of that child it will "drive the rash in" and cause him to die in convulsions. And, of course, one of the commonest of a physician's memories is the expression of relief from the mother or aunt in many of these mild eruptive fevers, where the skin is well reddened and spotted: "Well anyway, doctor, it is a splendid thing to get the rash so well out." Until very recently it was no uncommon thing to hear the parents say, "There is a run of measles, but I suppose we might just as well have Johnnie go on to school and get the disease and have done with it. It seems to be the real mild sort this

time." Of course this view was scientifically shattered two or more decades ago by our recognition of the infectious nature of these diseases, but practically its hold on the public mind constitutes one of the most serious and vital obstacles in the way of the health-officer when he endeavors to attack and break up an epidemic of measles, whooping-cough, or chicken-pox."

HAHNEMANN AND HOMOEOPATHY

Homeopathy, in its essentials, is founded on the theory of Hahnemann, who urged that disease is due to some spiritual influence, that it consists of its symptoms taken collectively, that it may be treated by the removal of those symptoms and that this result is to be obtained by introducing into the body of the sick person, in small quantities, such drugs as have been found to produce the identical symptoms in a well person. The whole fabric of this scheme is highly artificial and it was put forward by a man who was a theorist first and an observer and student of the human body and its ways only incidentally. In our day, when facts count for what they are and not for what we should like to have them, it is naturally unsatisfactory in its whole structure. The school of homeopathy, as it remains with us today, has almost, if not entirely, shaken off this fanciful chain of reasoning by which, under Hahnemann, it was bound up with the empiricism of an earlier and even less enlightened period and the homeopathic physicians of today actually make use of much the same methods in diagnosis and treatment of disease as the so-called "regular" or "old school" physicians. The true physician, under whatever name or creed he may have entered the communion of the healing art, must in this day deal in fact, not theory. He must be, above all things, broad-minded and well informed; he must be ready to accept and to employ the discoveries of science as soon as their therapeutic value be established upon a firm basis in accordance with the most reliable tests of modern experimental medicine.

EARLY SCIENTISTS

There are a few other names which should not be omitted in bringing the story within reach of modern science. Among these are Vesalius (1514-1564), who made anatomy a science; Harvey (1578-1657), mentioned in every school physiology, who discovered the circulation of the blood and first announced the function of the arteries, till then believed to be air passages from the fact that they were found empty after death; and Leeuwenhoek (1632-1723), whose invention of the microscope opened to scientific investigators the hitherto unseen world of the infinitely small in which develop the causes of many of the ills that beset us. Kircher and Malpighi should be mentioned, the technicians who gave the first suggestion that the newly found microscope was to be the real discoverer of the causes of many of the diseases; and Jenner (1749-1823), famous for the introduction of the first scientific use of a biological prophylactic, inoculation. These men paved the way, so to speak, for the great modern leaders in bacteriology, Pasteur, Lister and Koch.

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Are you coming to the Institute? Whether you are or not, you will be interested in the account of it and schedule of demonstrations published on pages 928-930, this issue.

PRELIMINARY REPORT ON THE PROPHYLAXIS OF WHOOPING COUGH

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THE study of whooping cough statistics during its spread through the schools of Akron convinced me three years ago that methods of quarantining whooping cough had very little effect in limiting the spread of the disease. My own experience in treating whooping cough with bacterin, dating from eight years ago, and the use of bacterin in prophylaxis for exposed non-immune children in the same family, led me to feel that the only way to control whooping cough in schools was to immunize the non-immune children who had been exposed.

About two years ago, when the new regulations for the control of whooping cough went into effect, requiring quarantine for exposed non-immune children for 14 days, I felt that better control would be had if the children were immunized and remained in school under the supervision of the teachers and nurses. Accordingly, I notified parents that the children who took the immunizing doses would not be excluded, if not coughing.

At that time there were about 50 cases in Findley school and practically all children who had not had whooping cough were immunized by their own physicians or by the school physicians. Within a month we found that we were not getting any more whooping cough cases in the Findley district. At about the same time we carried out the same process in Caldwell district, which was at that time our most serious focus of the disease. Results were similar. There were no more new cases after about a month. A few children in both schools who were showing initial symptoms developed mild cases of the disease, but none who had no symptoms at the time of receiving the first immunizing dose developed the disease. The nurses have since checked up on the cases of whooping cough from these two schools and have found no case among the immunized children. The immunity apparently has lasted two years, as we have, during 1920-1921, had many cases of whooping cough in these schools among the new children who were not immunized two years ago.

During 1920 we prepared to extend immunizing work and for the purpose had some bacterin made up of a strength of 5 billion Bordet bacilli to one mil. Owing to scarlet fever, influenza and smallpox outbreaks, no use was made of this bacterin until December, 1920. In December, 1920, an epidemic of whooping cough having started in Spicer school, we used this bacterin in doses of 2½ billion followed by 4 billion three days later. Immunization covered all rooms in the building on a purely voluntary basis. About 90 children were immunized by the school physicians. Two of these 90 who subsequently developed mild cases of whooping cough were found on investigation in the household to have been in the first stage of whooping cough at the time they received their first dose. Only 3 new cases of whooping cough occurred in Spicer district during January and February, 1921. Part of the immunization in this school was done with plain Bordet 2 billion to the mil. and part with mixed bacterin containing the same strength of Bordet. It was observed that no local or systemic reactions occurred except in those children who subsequently developed the disease, even from the dose of 4 billion. I should therefore feel inclined to believe that the proper

strength for either prophylaxis or treatment is at least 5 billion to the mil. This observation is based on the use of Bordet mixtures of strengths from 50 million to the mil. up to 5 billion to the mil. I feel the failures with Bordet bacillus in the treatment of cases, of which we have many among indigent families, are due entirely to insufficient dosage administered at too-long intervals. A safe principle in the use of whooping cough bacterin is, "the younger the child, the larger the dose required." I have repeatedly observed, when treating 3 or more cases in the same family, that the oldest child would clear up completely on three injections, whereas the baby would require four or five injections with a maximum dosage of not less than 4 billion before the disease was cured. However, no case has failed to respond if the injection was given not later than 48 hours after the preceding one and the dose doubled each time; for example, 0.5 mil., 1 mil., and 2 mil. of a bacterin containing 2 billion Bordet bacilli per mil.

I am at present attempting to control whooping cough in the schools by giving the parents of all non-immune children in any school in which a case has appeared the choice of getting the children immunized by their own physician, if they are able to pay for his services, or by the school physician, if they are unable to pay. I feel that the method is sufficiently promising to be tried out on a large scale in order to accumulate sufficient data on which to base definite conclusions as to the value of the procedure. I reserve the right strictly to enforce the regulation excluding for two weeks non-immune children in any room in the school, if the parents refuse to have them immunized, for experience has shown that whooping cough, like smallpox, spreads throughout the school owing to contacts made in the halls, on the playgrounds and on the streets. Fortunately, most parents prefer to have their children immunized, as they realize the very serious nature of the disease and the deleterious effects which so often follow a severe and protracted case. It is noteworthy, as principals and teachers invariably remarked when watching the work of the school physicians, that the children are very brave about taking an injection and return cheerfully for the second injection. I have preferred to use two rather large injections 3 days apart rather than 3 injections 5 to 7 days apart. I use 1 billion and 1.6 billion and believe that it probably does the work as well as 1 billion, 2 billion, and 2 billion at the longer intervals mentioned; for I think that it catches the wave of increasing resistance near the peak before the decline has begun and pushes the peak high enough to establish a positive immunity. I reached this conclusion from observation of the effects of mixtures of the pus cocci in local infections, having observed that in acute infections it was safe to administer double the initial dose in 24 hours, and that this technic gave results in positively limiting and aborting the acute infection such as could not be obtained by giving small or moderate doses with longer intervals of time between the injections.

Summary—Experience seems to show that sufficiently large doses of Bordet bacilli establish a positive immunity against whooping cough and check the spread of the disease in the public schools.

Whooping cough bacterin is the only therapeutic measure worthy of consideration in the treatment of the disease. Failures are due entirely to insufficient, timid dosage at too-long intervals.

I believe that public health authorities are justified in promoting immunization against whooping cough just as they are urging immunization against typhoid fever.

HEALTH CENTERS AS SEEN BY A PUBLIC HEALTH NURSE

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THERE is not the slightest doubt that the average citizen of today is more interested in the subject of public health than he was ten or even five years ago. Ten years ago very few of the rank and file had even begun to think of health as a public responsibility. During the World War the men of this country were subjected to a general physical examination, and the findings were, to say the least, somewhat disconcerting. Because of this the American people are ready to give attention and thought to the task of finding a remedy for existing conditions.

Just how the prevalence of physical incompetence is to be eradicated and a better state of health put in its place is still an open question, the health center being one of the focussing points around which many ideas are formed.

My own interest in a centralized health propaganda dates back to 1912, when I had the good fortune to be offered an opportunity to help in the planning of a health center in an industrial town of eastern Massachusetts. The town population numbered about fifteen thousand, a third of which was foreign born. The plan from the beginning was to establish a health center which should meet the requirements of the whole town and not just those of a specially selected group. As might be expected, it was necessary to dispose of the old traditions upon which many of the so-called social welfare organizations are founded. This was a hard but not a hopeless task. The idea most difficult to get rid of was that the care of the sick is the only legitimate kind of health work.

The cost of the experiment was an important consideration, and private money was the only possible source of income for such a venture. Another important decision to make was where the work of the health center should begin and where it should stop, and it was soon learned that if the center were really to serve the people the words "Public Health" must be given a very broad interpretation. Our center must be made a part of the civic interests of the town. Our interest in the baby must include the parents—where they work, how they live, what they play and where. While the resources of our own health center must of necessity be limited, the center must be so linked up with other sources of information and helpfulness that the service it offers would be of real value.

What really happened was that this health center which I was permitted to help in launching soon became a sort of civic laboratory, where one enterprise after another was taken up, and after it was tried out and approved was taken over by the town government to be absorbed into some branch of the administration. Occasionally it would be advisable to keep some special piece of work in the hands of the trained workers of our own organization, and in such cases the worker was made the official agent. For four years the work progressed, and when the war swept in upon us the center was still in an experimental stage, although much permanent work had been accomplished.

I was once more favored by fortune in being associated with the American Red Cross in the spring of 1919, when under the direction of Dr. Farrand this organization took up for its peace-time program the launching of the health center as a nation-wide institution. The plan was to induce the local Red Cross chapters throughout the country to establish or help to establish within their own communities good public health centers, and the results of this campaign have been most interesting. Without going

into the details of the whole movement, it may be said here that a great variety of health centers are now in existence. The type most common is the nursing center, which is very like the well-known Visiting Nurse Association, except that less stress is laid upon the care of the sick and more upon the protection of the well. In these centers the visiting nurse is (or should be) a public health nurse, doing both school work and board of health work, as well as child welfare and bedside nursing. The health center itself is in most cases a room in some public building, where the nurse has her headquarters, occasionally the Red Cross Home Service worker has a desk in the same office. The Atlantic Division of the Red Cross has many such centers, while in the New England Division the Red Cross in many instances has pooled its resources with various other local and state agencies. In the Middle West and South the county health center is much in favor. This is a much larger piece of work and each center usually represents all of the health agencies of the county and state. In the cities the health center as a rule occupies a separate building, which is used for various health activities, each having office space and sometimes rooms for clinics. The object of this is for the purposes of convenience, economy and general efficiency, to bring together under one roof all organizations which affect each other.

My present professional interests are once again connected with the work of a health center, this time in an Eastern university city with a population of 165,000. The contrast between the small town center and the city center is most interesting to observe. In the city a carefully selected district is set apart and a most careful survey is made in order that all available information may be at hand. The district includes three wards of the city with a population of 27,000, 75% of the people being Italian, and the other 25% a mixture of nationalities, with very few Americans or English-speaking people.

This district is divided into seven subdistricts, with seven public health nurses and two supervising nurses assigned to the work by the City Visiting Nurses' Association. These nurses are expected to do general nursing, but no school work, two nurses being assigned by the Board of Health for the health center district. The contagious work is also under the Board of Health. Five child welfare clinics are a part of the nursing program. The Home Economics Department of the Visiting Nurses' Association is giving one-third time of one of its workers to the health center district. Her work is in the homes, with the mothers, and with nutrition classes for under-nourished children, which are held in the social centers within the district.

In the center of the district is the Keep Well House. Here is to be found the office of the director of the demonstration, with a full-time physician in whom is vested the authority of the Board of Health, also a part-time woman physician who carries on the pre-natal clinics. A sanitary inspector gives his full time to this district, working from the health center, but engaged by the Board of Health. Free medical examination is given any one who may wish to apply, but all cases are referred for treatment to the dispensaries of the city. The dispensaries also do the free maternity work in the homes. Besides the 14 full-time and 7 part-time health center staff workers, there are also workers in the district, representatives of the organized charities, the Crippled Children's Aid, the Mental Hygiene Association, the Red Cross Social Service, the Catholic and Jewish charities, and the usual number of churches. Within this district are two neighborhood houses, one large day nursery, the Salvation Army and the city headquarters of the Y. W. C. A.

This center, like that of the small town, depends upon private money for its support, with the exception of what is given by the Board of Health. Unlike the smaller center, there is no special

civic interest. Indeed, one might say that the demonstration as a whole is so highly specialized that it is beyond the comprehension of the ordinary citizen, and even less intelligible to the non-English-speaking residents of the health center district. The demonstration is still in its infancy. How far reaching its future work will be on one can foretell, but a better standard of health and statistics that will be of great value in estimating the economic waste of sickness are among the things hoped for.

All of the many health center experiments are but straws floating upon the stream and merely show the direction of the current. America is awake, and with her usual vigor she is bent on seeing to it that public health shall be established and maintained.

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A THIRD MEASURING ROD IN MORTALITY RATES

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CERTAIN conclusions were reached in a previous article,[1] namely:

1. Crude mortality rates, as shown by the Bureau of the Census, are in general measurable by the amounts of the filth-borne diseases, plus the respiratory diseases, plus a constant of 5.5, which latter figure was expressed as irreducible.

2. There were certain discrepancies as follows: (a) The possibility that higher estimated rates than the recorded represented an excessive estimated population. (b) The possibility that low estimated rates arose from the irregular distribution of unknown and of "all other" diseases. (c) The possibility that there was an exception to the higher recorded rate of states over cities, although the estimated rate showed no such exception.

It is now possible to show that the key to the discrepancies, other than the point raised as to over-estimated population, lies in the estimation of the constant, 5.5. The revised statistics for the years 1915-1917 as published in the 1919 Report of Mortality Statistics, Bureau of the Census, with population estimates based on the census of 1910 and the preliminary figures for 1920, show that for the years mentioned and given in our previous article, 1915-1917, New York City had yearly rates of at least 1 per 1,000 population in excess of the previously recorded rates, thereby more nearly approximating our higher estimated rates. Such may be seen in the appended table. The remainder of the excess of the estimated figures over the recorded, whether revised by the recent statistics or not, lies in the consideration of the constant 5.5.

A study of the vital statistics over the years recorded shows that the constant 5.5 in the cities of the older registration area, and states as well, is year after year generally approximated by the sum of the amounts of the rates for cancer, violence, and of all other diseases. Using the rates for all other diseases multiplied by the constant 2.4, we have very generally for the various years and for all areas or specific parts of the registration area that measure of the previously used figure 5.5 which fulfills the following conditions:

1. Takes up the discrepancies of lower recorded over higher estimated rates.

2. Explains crude mortality rates of the country under 5 per 1,000 population.

[1] Lewis, Dwight M., Measuring Rods of Mortality Rates, *American Journal Public Health*, September, 1921.

3. Would seem to be an indicator of where a portion of one of the other measuring rods (of filth-borne diseases, for example) is erroneously contained. This possibility is also well shown in the appended table.

There stands out, then, rather strikingly the fact that the higher estimated mortality rates are nearer than the recorded ones during the later intercensal years as shown in our previous article, to the figures shown by the revised recorded rates based on the census following. Yet, when we bring into line estimated rates for the years 1918-1919 as shown by the recorded rates based on the 1920 census, whether the figure 5.5 is used as the constant or its found measure, "all other diseases," we find very generally a discrepancy between the recorded and estimated rates. It would seem that where there are specific rates for influenza or for measles of approximately 100 per 100,000 of population or more, such epidemic figures make for excessive rates when the constant 2.6 is used. Wide sampling of states and cities as far back as 1909 shows the system accurate whether in terms of the irreducible 5.5 or its new substitute, 2.4 times "all other diseases," and approximately so for the years 1900-1909, during which period all other respiratory diseases are not separable, nor the infant diarrhea under age two from total diarrhea, and the system holds for the year 1919 where influenza is less than the epidemic figure mentioned. Whether, then, in terms of measles or of influenza, such epidemic rates are evidence of the necessity of reduction of the constant 2.6, which otherwise holds true for respiratory diseases. A figure 1.6 gives accurate results for the years 1918-1919 where the epidemic rate for influenza is, as generally, in excess of 100 per 100,000 population. For the year 1918, all the estimated and recorded rates of all the cities and for the total cities of registration states given in the census report, with the one exception of Grand Rapids, are in accord with such a modification. Although the rate for influenza for that city was just over 100, the estimated rate, using 2.6 for the constant for the respiratory rate, is closer to the recorded rate.

The table on following page shows the contrasting rates of the original census figures based on the estimated increase of population for the year as shown by the 1900 and 1910 census and the revised rates as recently published based on the 1920 census. As illustrative of the discrepancies we have mentioned, the original rates include the recorded, the estimated one based on the irreducible 5.5 (Est. d. 1) and the estimated rate where that figure 5.5 is replaced by the third measuring rod, 2.4 times "all other diseases" (Est. d. 2).

Of especial interest and value is the estimation of the mortality rates of the rural counties of, for example, California and Colorado, where, for reason of rates less than 5 per 1,000 population, we are warned against accepting those rates as responsible. The three measures of respiratory diseases, filth-borne and "all other diseases," when compared with the crude reported rates, are very generally in accord. Here the key largely lies in replacing the irreducible 5.5 with its proper measure.

Beyond the elicitation of the discrepancies found in the former article, in great part by means of the third measure replacing what was considered a possible irreducible, we have evidence that such a measure is of further value. In the case of Memphis in 1917, as contrasted with the years 1918-1919, and similarly for Birmingham, the estimated rates are in excess of the recorded. It would seem possible that a large part of the unusual rate due to "all other diseases" for that year, 1917, for both cities, contained such a content of filth-borne diseases as would, if corrected, have reduced the estimated rates to the agreement of the years 1918-1919 and of

other similar cities of the South where our system holds true.

In sum, there would seem to be accurate evidence of the possibility of measuring crude mortality rates as to the content of filth-borne diseases, of respiratory diseases, and of what would seem to be dependent on injuries and violence. There would seem as well to be cross checks as to where excesses of variations of each of the triad may be placed.

TABLE OF RECORDED AND ESTIMATED MORTALITY RATES

Area, State or City	Year	Original Rates			Revised Rates	
		Actual	Est'd. 1	2	Actual	Est'd. 2
U. S. Registration Area	1917	14.165	14.274	14.275	14.258	14.495
Cities in Registration States	1917	15.151	15.046	15.142	.....	.....
Minnesota	1917	11.737	12.079	11.345	.....	.....
Minneapolis	1917	11.817	12.137	11.457	.....	.....
New York	1917	14.389	15.276	14.459	.....	.....
New York City	1917	13.685	15.351	14.170	14.558	15.095
Massachusetts	1917	14.913	14.388	14.614	.....	.....
Boston	1917	16.546	15.941	16.892	17.388	18.172
Connecticut	1917	17.065	16.749	17.179	.....	.....
New Haven	1917	17.094	16.319	16.807	16.809	16.513
Manchester, N. H.	1917	8.449	12.243	8.567	.....	.....
Maryland	1917	18.482	15.704	17.145	.....	.....
Baltimore	1917	18.434	17.924	19.242	17.742	17.983
Washington (state)	1917	7.598	9.468	7.571	9.383	9.367
Seattle	1917	6.904	8.520	6.536	8.566	8.120
Detroit	1917	18.940	22.861	24.542	13.587	13.941
Montlclair, N. J.	1917	9.266	12.060	9.611	.....	.....
Memphis	1917	19.878	19.170	23.073	20.773	24.053
Memphis	1918	.....	.....	.....	24.551	25.327
Memphis	1919	.....	.....	.....	21.448	19.291
Birmingham	1917	20.220	20.068	24.296	22.973	26.502
Birmingham	1918	.....	.....	.....	25.287	26.320
Birmingham	1919	.....	.....	.....	16.652	14.862
Chicago	1917	14.923	15.838	15.551	14.792	14.207
Chicago	1918	.....	.....	.....	17.061	15.044
Chicago	1919	.....	.....	.....	12.521	12.438

RAILROAD RATES

Complete information on travel to the Fiftieth Annual Meeting is contained in the August-September NEWS LETTER, as well as a coupon by which you can secure your identification certificate for the reduced fares. If you have not received your copy, write for it. Some stopover privileges will be allowed. On this and all other railroad matters, consult your local passenger agent.

SANITARY CONTROL IN THE MANUFACTURE OF FOODS AND ITS ECONOMIC IMPORTANCE

GEORGE GRINDROD
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THE centralized manufacture of foods in large factories is a development of recent years only, and an economic feature having no parallel in previous history. Packaged food is an innovation of the last fifty years and chiefly even of the last twenty-five years. Until well within the last half century, foods were produced and consumed directly, and if held for any appreciable time, were stored and transported in their original state, just as potatoes are now stored for a limited time and transported in the raw condition.

Within recent years two fundamental changes have taken place in the production, preparation and handling of foods; these developments have had such effects on centralization of population, and dependence on manufactured foods as to make them of vital importance.

The first development has been in the preservation of foods so as to permit their storage for indefinite periods and their transportation. This is essentially the dehydrating and canning industry.

The second development has been in the transportation, purification and synthesis of foods. This is a natural though rapid outgrowth of the canning industry. The extensive production of foodstuffs from natural materials never before available for use as foods marks the beginning of an industrial development of inestimable extent. The production of sugar from sugar beets, the making of syrup from starch or sawdust and the chemical production of edible fats from inedible fats are typical examples of this course of development.

The manufacture of foods has been responsible for great centralization of population, for the continued growth of cities, and for an increase in population which could not have been supported without such manufactured foods. Now, the public depends on factories for its existence. Manufactured foods are not a substitute or only a means for storage from season to season, but are a necessity for existence.

Only a few years ago, canned and manufactured foods were regarded by the public as substitutes and as inferior to the fresh foods and to home-canned or prepared foods. Factory-prepared pickles and catsup were once accepted for use only when a home-canned supply could not be obtained. Factory-made syrup was thought injurious to health, and almost dangerous to use. Canned milk was once considered only an imitation made up of materials which never came from a cow, and a substitute to be used only in extreme necessity.

This tendency of the public to mistrust manufactured foods was undoubtedly induced by the poor methods of manufacture used in some of the earlier food factories. Adulteration of foods by some unscrupulous manufacturers before the beginning of government food control undoubtedly had a decided effect in this direction. But the principal reason for doubting the purity, cleanliness and wholesomeness of the earlier canned foods was the lack of cleanliness and proper sanitary control in some factories.

Lack of extreme cleanliness in factories in many cases would not injure the product at all, but the psychology of the human individual is peculiar in this respect. The average person is much more critical about the handling of food in large quantities than in small quantities. Cleanliness in a kitchen would not be cleanliness in a factory. Home-canned foods may be put up in a kitchen in

which the cleanliness is really questionable, and their quality will never be doubted. But the same housekeeper would not knowingly buy canned foods put up in a factory, if the factory were in the same condition as her kitchen. In the factory, the bulk of material handled magnifies all refuse and dirt so that it is much more evident.

A food factory must be as clean and sanitary as a hospital should be. Those rooms in which the food is processed should be as clean as the operating room of the hospital. Nearly all large factories now come up to this standard.

The sanitary control of a food factory embraces three other features besides cleanliness of the factory itself. These are, bacterial and chemical inspection of the raw materials and similar inspection and control in the processing as well as of the finished product. The raw materials and the manufactured products are subjected to scientific examination and control which could not be attempted in small scale or home manufacture.

SANITARY CONTROL OF RAW PRODUCTS

The production of canned milk furnishes a good example of scientific control of the raw product, and illustrates the advantages of large scale manufacture.

The manufacturer of any milk product is compelled, if he desires to make a high-grade product, or even any product at all, to use the most efficient and rigid sanitary control of his raw material. It is impossible to make evaporated milk out of anything except strictly normal fresh milk. If the milk is dirty or is from diseased cows, it will not stand sterilizing, but will coagulate in the process. The margin of permissible deterioration of the raw product is very narrow, and the processing is even a more rigid test for normality and freshness of the milk than the bacterial examinations commonly made by city laboratories of their milk supplies. If the manufacturer of evaporated milk receives any appreciable percentage of abnormal milk he very quickly finds evidence of it. His problem is then to prevent receiving such milk and further to instruct the producer how to avoid contaminated or abnormal milk.

The thoroughness of sanitary inspection of fresh milk received by condensaries insures to the public a finished product of uniformity and quality not to be found even in the highest grade market milk. City and state departments of health make a practice of examining samples of milk sold, taking samples from each dealer at irregular intervals and making bacteria counts. In general, market milk is inspected for adulteration, and total bacteria only. In contrast to this, large condenseries make a regular practice of inspecting every can of milk received, and the complete inspections are made every day. The milk is not examined for bacteria by the plate culture method as used in city and government laboratories but is first subjected to a sensitive coagulation test which detects not only bacteria, but their products. The method also detects milk from cows having any disease of the milk tract, and indicates the presence of and extent of souring, if any. These coagulation tests are made before the milk is received, and any milk found abnormal is rejected or held for more extended investigation. A further investigation of milk found abnormal by coagulation tests is made for the purpose of advising the producer so that he may remedy the trouble. These further examinations are not limited to bacteria counts, but include miscroscopic examination by special methods which show the presence of disease, if any, and the kind of disease, and include rapid methods for the identification of bacteria of certain groups, whereby the producer can be informed as to where the contamination, if any, got into his milk. This work involves the use of highly specialized methods of bacteriology developed in the industry. A remarkable feature of this inspection is the speed with which the examination is made.

Complete bacteriological examination of milk as heretofore made in most milk inspection laboratories require at least two days of time and a dozen samples constitute a day's work for the bacteriologist. By the use of improved equipment and more rapid methods the bacteriologists in the condensed milk industry make complete examination of milk, including bacteria counts, inside of one day, and instead of examining a dozen samples per day, each man examines from 150 to 300 per day and is then able to tell not only whether the milk is up to standard or not, but specifically what is the matter with it if it is abnormal. This is an example of specialized sanitary control and the application of one of the newest sciences, bacteriology, in the service of the public.

The development of scientific control of raw food materials, of the processing and the inspection of the finished product brought manufactured foods into the position where they are not regarded as substitutes for fresh foods, but as essentials. Manufactured foods are no longer used only when the fresh supply is not at hand, but are preferred by the majority of people, because of their purity and uniformity, and the guarantee of absolute cleanliness in their production.

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SANITATION OF FRUIT AND VEGETABLE CANNERIES

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Los Angeles, Cal.

Read before Food and Drugs Section, American Public Health Association, at San Francisco, Cal., September 13, 1920

THE mechanical and the educational divisions of the subject of canning are each of them important factors in effecting the excellent sanitary conditions under which the vast majority of the fruit and vegetable canneries operate.

MECHANICAL

First there is the effect of eliminating hand work by the invention of machines. As in other great industries with the ever-decreasing supply of labor and the ever-increasing demand for production, there has been within the past few years marked improvement in the machinery used by the industry.

Only a few years ago peaches were peeled by the slow and tedious process commonly followed by the housewife, that of handling the individual peach and removing the peel with a knife. Today such a practice would render impossible the handling of the thousands of tons of peaches which go into the can, and as a result of this demand we find the lye method in general use all over the world. It is an ordinary thing to find factories canning from 75 to 150 tons of peaches per day under most sanitary conditions. After the pit is removed the peaches need not be touched by human hands except to place them in the cans.

Perhaps the most striking example of the preparation of food entirely by machinery is found in the packing of peas. Peas are mowed in the fields, thrashed and hulled by machines, delivered to the graders by conveyors, where the hard peas are culled out, and the various sizes separated. They are then filled into the cans by machinery and go on to the consumer without having been touched once by human hands. When one considers that there are hundreds of millions of cans packed with peas in this manner the vastness of this procedure is apparent.

The advent of the so-called sanitary can probably marks the greatest forward stride of the industry in its mechanical

development, as this can, by the very nature of its construction, without the use of solder inside and the fact that it can be hermetically sealed without solder, gives the industry a container which does not easily catch dust in long shipment and one which may be easily washed. The machine which crimps the cover on these cans at the rate of 120 per minute represents the finest piece of machinery found in the fruit and vegetable canneries, and has necessitated an increase in the capacity of other machines so that the speed is kept to a maximum. The value of these mechanical improvements in providing ideal conditions for sanitation are very apparent since they permit the handling of tremendous quantities of raw material at great speed, which, after all, is the essential thing in producing a food commodity from a perishable raw product.

In general every part of the fruit and vegetable canning industry has kept pace with the mechanical development so that today a large portion of our food supply is produced in modern sanitary buildings, provided with concrete floors, flooded with direct sun light, the interior painted white, properly screened against the invasion of flies, bees and other insects, with adjoining grounds oiled or regularly sprinkled with water to keep down dust.

It has been said "that the most essential thing to a cannery is a tremendous water supply," and this has been given most serious consideration by canners everywhere. To appreciate this fully one can imagine the importance of water when there is required from 5,000 to 20,000 gallons of water for a single wash-up of a cannery. Every factory does this after the day's run, and indeed many factories wash-up morning, noon and night. The use of germicides and disinfectants in canning factories was discontinued years ago, as it was found unnecessary to employ these agents where plenty of water and steam were used. It is indeed worth the time of any layman to visit a cannery during the wash-up period, as the effort exerted to close up a clean house for the night appeals to everyone.

EDUCATIONAL

As in all problems of sanitation, the educational feature stands out as being the most vital factor to be considered. It is not only the most important factor but is usually the most difficult to handle.

The fruit and vegetable canning industry has made remarkable progress within the past few years, and today it is the exception rather than the rule to find a canner who is not fairly well versed in the consequences of running a plant under faulty sanitary conditions. Indeed his knowledge of sanitation is much superior to that of the well informed layman. To produce this situation there has been required the expenditure of hundreds of thousands of dollars by the industry at large. The work of the U. S. Bureau of Chemistry has been exceedingly helpful and a large amount of the success met with in having the industry appreciate sanitation is due to the fearless and tireless leaders of the Bureau of Chemistry.

The preparation and distribution of bulletins and other propaganda along this line has been directed by the National Canners Association for a number of years, until today we have the Sanitation Inspection Service of the Association operating throughout the entire United States, maintaining twenty-one offices and supervising the manufacturing of food products in several hundred of the best canneries in the land. This work involves the careful inspection of the plant and of the raw and finished products. If inspection is found to be in accordance with rules set down by the association, the product is entitled to carry the Emblem of Inspection on its label or can, which emblem is generally being accepted by consumers as a badge of merit and an emblem of superiority.

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HARVARD'S NEW SCHOOL OF PUBLIC HEALTH

Only those who understand the real value of health education with resultant proper health habits as the most effective means of preventing disease can thoroughly appreciate the full significance to the United States, and, indeed, to the world in general, of the gift of $1,785,000 recently made by the Rockefeller Foundation to Harvard University for a School of Public Health.

When one realizes that (according to a life span chart of the Life Extension Institute) the average expectation of life at birth, despite a gradual increase since the era of exact record-keeping began, is still but fifty-one years; that the average period of productive activity is only forty-two years, while the average period of physical freedom and full vigor is only from eighteen to thirty-one years, a new emphasis is placed upon the pressing need for more health experts such as can be trained in a thoroughly equipped institution like that made possible by the Rockefeller endowment.

According to the announcement made on August 22, "The new school will provide opportunities for research, will unify existing courses, and will offer new or extended teaching facilities in public health administration, vital statistics, immunology, bacteriology, medical zoölogy, physiological hygiene, and communicable diseases."

The plans include coöperation with various laboratories, hospitals, and public health agencies in Boston, thus affording students unusual opportunities for first-hand investigation and practical field experience. One of the most important phases of the program, particularly at the moment, when conditions of industrial life are so critical, is the practical experience in industrial hygiene which will be afforded through coöperative relations with certain manufacturing and commercial corporations.

While the school will have its headquarters in a well-equipped building of its own, and will have its own separate faculty and administration, it will be closely related to other divisions of the University, especially the Medical School. Certain heads of departments will be members of both faculties, and various laboratories and lecture rooms will be used in common.

In addition to the initial gift to the school of $1,785,000, provision has been made for further gifts in the future, as may be required, of an amount not exceeding $500,000.

The endowment is one of many made during the last few years for public health and medical education by the Rockefeller Foundation, whose purpose, as announced in the charter of the Foundation, is "to promote the well-being of mankind throughout the world." The gift seems particularly opportune at this time when strong bodies and keen minds for years to come will be needed to bring order and stability out of the chaos of the last few years.

ANOCIATION

A careful psychological preparation of the patient for the operating room and its events is one of the first principles of the pre-operative technique used by Dr. George W. Crile. "Anociation" is an abbreviated form of "anoci-association" (literally, absence of harmful associations), a term which Dr. Crile has applied to his methods of preventing surgical shock and has developed as a corollary of his "kinetic theory of shock" in various books and monographs, notably *Man an Adaptive Mechanism* (Macmillan, 1916) and *Anoci-Association* (Saunders, 1914). In addition to the use of nitrous-oxid-oxygen as a general anesthetic, and novocain and other drugs as simultaneous local anesthetics, the technique calls for detailed attention to the emotional effects of the patient's environment.

This is, of course, no more than the present practice in some of the best hospitals wherein the first impressions of the receiving ward, the subordination of instruments, the esthetic preparation of food, tactful and cheerful conversation, and considerate and gentle treatment on the part of the nurses, anesthetists, and surgeons, all combine to improve the morale of the patient before the operation. These things have been found to have a direct physical effect in the keeping down of acidosis, which otherwise results in over-activation of the kinetic system, including the brain, the liver, the adrenals, the thyroid, and the muscles. They also exercise a distinct influence upon the metabolism of the healing process. Dr. Crile claims for his methods, as employed in his clinic at Lakeside Hospital, Cleveland, a large reduction of post-operative mortality and morbid sequelae.

The JOURNAL has neither the knowledge nor the authority to suggest that Dr. Crile's technique should be adopted bodily by all surgeons and hospitals. That is the province of specialists. Scientific study of the body from the biological standpoint, of operative conditions, and of possible methods is undoubtedly the responsibility of all who have to do with surgical cases, and some such technique will probably be the universal rule in the future.

But the method has suggestive implications for others than the surgeon: for instance, the public health official, seeking to put before his constituency certain essential principles of sanitation and personal hygiene, can often make use of analogous methods to prevent "noxious associations" on the part of those to whom he addresses his plea. The propaganda against vaccination, against vivisection, against the Schick, Wassermann, and other modern tests, and against all forms of medicine and surgery which oppose or minimize the so-called drugless methods, secure their main support from the tendency of the human mind to be disagreeably affected by associations of pain, suffering, and horror. The anti-vaccinationists, for instance, ring the changes upon "pumping your children full of poisonous and decaying 'germs.'" Instances will occur at once to the mind of the reader of how this readiness to fear and shock has stood in the way of essential and desirable progress in sanitation. It is the business of the public health expert to use psychological methods as subtle in their way as those of his opponents. Many desirable reforms can be promoted by calling up in the mind of the average man, negative associations in connection with the condition which it is desirable to prevent, and positive ones in connection with the remedy.

To create the requisite agreeable associations in the case of vaccination, for instance, we must stress three things: (1) the desirability of freedom from disease; (2) the harmlessless of scientific vaccination; and (3) the preventive efficiency of the vaccine method. The present generation has never known the dread which the disease inspired three centuries ago, when a fourth of the population of England was carried away by a single epidemic, and the pock-marked face was so frequent upon the streets as to be a commonplace. But every one knows the healthy smoothness of a baby's cheek, and every one wishes to retain, if possible, such a complexion for himself and his children. Emphasize, then, the advantages of health and of immunity from contagion. Secondly, bring home that the process of vaccination is nothing to be feared. Its actual effects in producing either local infection or serious illness or death are negligible and traceable entirely to careless administration. The physician who is thus indifferent to his client's welfare would be equally untrustworthy for anything from coryza to a major operation. Modern methods of vaccination occasion practically no discomfort and seldom any sequelae. Finally, the facts of reduction of smallpox mortality, coincident with the introduction and general extension of vaccination are incontrovertible. The supporting data are abundant. There is in the United States at present, as pointed out in the August JOURNAL (page 751) and in a recent review of the situation in twenty states by Force and Leake (*Public Health Reports,* August 19, 1921), an upward tendency to the curve of smallpox case rates. This rise has been paralleled by popular apathy in regard to vaccination and by legislative reaction in its enforcement,—so much so as to indicate that these are the main causative factors in the increase. But comparing conditions over long periods of years, even with this setback and regardless of the type of disease, prevalence today is so slight as to be a matter of common knowledge to every one.

Examples could be multiplied, but sufficient has been said to suggest ways of application of "anociation" to problems of public health-education.

LETTERS TO THE EDITOR

Ithaca Again

To the Editor, AMERICAN JOURNAL OF PUBLIC HEALTH:

In spite of the evident interest and pride of the leading citizens and the Board of Health of Ithaca in their local milk supply, the facts remain that the milk delivered to the cafeterias for use by the University students came, during the college year 1919-1920, from sources outside of the control of the Ithaca Board of Health, so far as production was concerned, and the bottle caps did not carry the information required by the state public health law with regard to place and date of production and pasteurization. Furthermore, the not infrequent occurrence of turned or slightly soured milk as served at the cafeterias appeared to give valid evidence that bacteriological control of this supply at least was not maintained or enforced. No study was made of the general commercial milk supply of the city. The statements as made in the article with regard to the milk supply used on the University grounds by the students are believed to represent the facts of the case.

HAVEN EMERSON, M.D.

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The Scientific Worker a Poor Correspondent

To the Editor:

This letter is written in order to present to scientific workers a defect which I believe merits attention: namely, the tendency to be lax in correspondence. This accusation has been made against professional men in general, but my experience has been most exasperating in the case of the more technical type of worker—notably the laboratory man.

It is easy to see why the scientific worker should tend to become less "businesslike" than the executive. A good business man is one who decides and acts quickly, even if he does not always decide right. A scientific man, on the other hand, is judged primarily by his accuracy, so that undue speed must sometimes be avoided in his daily work.

It is true that the scientific worker does not always have adequate stenographic assistance, but that defense should not be taken too seriously. Some of the busiest and most capable scientific men customarily answer their letters by marginal notes. This is an actual saving of time over the dictation method, and is infinitely more satisfactory than interminable delay or no reply at all.

The real trouble seems to be a tendency on the part of the scientific man to put off his decisions, whereas he needs to take himself by the collar and resolutely compel himself immediately to dispose of those matters which can be settled at once. He needs to do this in fairness to his correspondents, but more particularly for his own good. Many a capable scientific man has lost larger opportunities because his unwillingness or inability to act promptly has given him the reputation of lacking capacity.

Therefore, let the scientific man hang a big "Do It Now" sign over his desk and follow it.

A SCIENTIFIC MAN WHO LEARNED HIS LESSON THROUGH HARD KNOCKS.

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Acupuncture

Dear Sir:

In view of your very timely editorial on "Vaccination" (A. J. P. H., August, 1921, p. 751), may I point out the advantages of a method of vaccination not mentioned in the editorial—the acupuncture method—the embryonic idea of which was suggested to me by Kinyoun of Washington a number of years ago and which has developed, especially during the war, to an exceedingly simple technique.

May I comment on your editorial "five points" as follows?

Numbers one, two and four are incontrovertible. The acupuncture method, however, lives up to the requirements of number four even better than the techniques suggested.

Number three, urging that one point of inoculation is as good as three or four is indubitable academically. Practically, however, a certain number of persons who are given inoculations at say three points will develop "takes" at two or even one point only. Obviously had only one point been inoculated this might have been one of those which did not take; and revaccination with its practical difficulties would have to be secured. In vaccinating, one must first catch one's hare. Having caught the hare, it is good practice to kill him very dead

indeed while you can, lest he get away again.

The value of number five, calling for surgical care of vaccination "wounds," depends upon the interpretation of the term "surgical care." In the acupuncture method there is *no* traumatic "wound," and the principle for successful development of the pustules is absolute non-interference. Absolutely *no* dressing or other treatment of any kind whatever should be given. The "patient" should not expose the pustules to mechanical injury (is very unlikely to do so, of course, from instinctive self-preservation) and should not take *prolonged* baths, which may soften the pustule walls and so encourage breaking open of these otherwise firm cavities. May I add that the acupuncture technique is an excellent one for using tuberculin in von Pirquet tests, and in using extracts of various foodstuffs in anaphylaxis skin tests.

H. W. HILL,
Director, Institute of Public Health, London, Ontario.

ASSOCIATION NEWS

LIST OF NEW MEMBERS

Proposed for Election to the A. P. H. A. August 1 to August 31, inclusive.

Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

COLORADO

Agnes Paulsen, Denver, Colo.
Olive Viola Haynes, Community Nurse, Primero.

MASSACHUSETTS

Prof. C. E. Turner, Cambridge.
Alma Taylor, R. N., 11 Hoyle St., Norwood, School Nurse.
James H. McCurdy, M. D., 93 Westford Ave., Springfield, Secretary-Editor, American Physical Education Association.
Miss Helen F. McCaffrey, 14 Mason St., Boston, Supervising Nurse, Boston School Department.

Bernard W. Carey, M. D., Boston.
Mr. Edward Wright, 141 State House, Boston. Assistant Engineer, Massachusetts Department of Public Health.

NEW YORK

B. R. Witt, LL.B., Brooklyn.
Abraham S. Teitelbaum, M. D., 2168 Pitkin Ave., Brooklyn. Bacteriologist.

C. E. Terry, M.D., Darien, Conn.
Mr. Cornelius Francis Collins, Children's Court New York, Justice, Court of Special Sessions.

PENNSYLVANIA

H. M. Freeburn, Harrisburg.
Claude F. Wertz, Engineering Assistant, State Department of Health, Harrisburg.
L. D. Matter, B. S., 1933 N. 7th St., Harrisburg, Sanitary Engineer.

CANADA

Dr. M. A. Nickle, Weyburn, Sask.
A. W. Knox, M. D., Colgate, Saskatchewan.

THE HEALTH INSTITUTE

Preliminary plans for the Health Institute were described in the September JOURNAL. In this issue we are presenting a more definite and detailed schedule of events. While this is still tentative and subject to correction, it may be considered as an indication of the scope of the Institute.

As previously announced, the Health Institute is to be held during the week preceding the Annual Meeting. The dates now selected are the four days, November 8, 9, 10, and 11. They begin on Tuesday and end Friday. The Annual Meeting will be held from November 14th to 18th.

The Health Institute is sponsored by the American Public Health Association, the Health Department of the City of New York, the New York State Health Department, the United States Public Health Service, and the National Health Council, with the added cooperation of over a hundred other associations. Dr. W. A. Evans is chairman of the committee in charge and Dr. D. B. Armstrong of the National Health Council is director of the Institute. Dr. Armstrong has recently been assisted by Mr. James A. Tobey of the Washington office of the National Health Council.

The purpose of the Health Institute is to afford an opportunity for public health workers to see the actual operation of the established methods applicable to various phases of public health activities, as vital statistics, child welfare, control of communicable diseases, (including tuberculosis and venereal diseases), public health nursing, social work, sanitary engineering, mental hygiene, laboratory procedure, and industrial hygiene. This will be accomplished by demonstrations afforded by the facilities of New York City and vicinity, each under the direction of a competent health authority.

The headquarters for the Institute will be in the conference room of the National Health Council, 370 Seventh Avenue, or the Hotel Astor, according to the number enrolling.

The following program has been arranged by the chairman of the subdivisions. A tentative tabular schedule is given herewith, the numbers in it corresponding to the numbers of the subjects in this program below.

Vital Statistics

Prof. R. E. Chaddock, Chairman.

1. Mechanical devices, research, etc. Metropolitan Life Insurance Company, Statistical Department, 1 Madison Avenue. (Dr. Louis I. Dublin, in charge.)

2. Division of New York City into sanitary areas for administrative and research purposes, New York Federation of Churches, and the 1920 Census Committee for New York City, 200 Fifth Avenue. Exhibit of Maps and Charts.

3. Division of Vital Statistics, New York City Health Department, methods of registration and recording births, deaths, etc., 505 Pearl Street.

4. Central exhibit of record forms for all varieties of clinic and hospital work, health centers, nursing associations, industrial plants, etc., 370 Seventh Avenue. (National Health Council Conference Room.)

5. Tuberculosis statistics at the New York Tuberculosis Association, 10 East 39th Street.

Hygiene of Mother and Child

Dr. S. Josephine Baker, Chairman; Dr. Jacob Sobel, Vice-Chairman.

6. Pre-natal clinic and Baby Health Station Service, City Department of Health, Baby Health Station, 206 Madison Street.

7. Meeting of licensed midwives at Borough of Manhattan Office. Demonstration at Bellevue Hospital School of Midwifery, 223 East 16th Street.

8. Cardiac and other special classes, public schools.

9. School Medical Inspection.
   a. Morning inspection.
   b. Routine classroom inspection.
   c. Physical examination.
   d. Consultation of parents.

Also Little Mothers' League, Health League and various clinics, as dental, eye, sight conversation, etc. Public School 21, 216 Mott Street.

10. Day Nursery, child caring institutions, and pre-school age clinics.

11. Demonstration of Schick Test.

12. Nutritional classes and clinics.

Public Health Nursing

Miss Elizabeth Gregg, Chairman.

13. Child Welfare Nursing.

Pre-natal work, methods of instruction and supervision, at baby health stations, and in homes.

School nursing, special clinics, open-air classes, care of children at all ages.

Diet kitchen nursing service.

These demonstrations will be given in connection with 6, 8, 9, 10, and 12 above.

14. Preventable Disease Nursing.

Methods of procedure and system of record-keeping in control of infectious diseases at branch Registration Offices.

District visiting with nurses to observe technique in families, especially among foreign-born.

15. Visiting Nurse Service.

Bedside care and instruction, obstetrical and contagious services, of Henry Street Settlement.

16. Social Aspects of Nursing. To be given in connection with 17, 18, and 19 below.

Socio-Health Activities

Mr. Bailey B. Burritt, Chairman; Mr. John C. Gebhart, Vice-Chairman.

17. Community health work of the Association for Improving the Condition of the Poor, Mulberry Community House.

18. East Harlem Health Center, Opening ceremonies and demonstrations of neighborhood health work, 356 East 116th Street.

19. Hospital social service conducted by Bellevue and other large metropolitan hospitals.

20. Tenement House Department, New York City. Methods of handling complaints and violations of the Tenement House Law. Inspection of typical buildings.

Sanitary Engineering

Mr. Kenneth Allen, Chairman.

21. Water Supply:—

21A. Kensico Dam, Valhalla, White Plains, N. Y.

21B. Exhibits at Museum of Natural History, 77th Street and 8th Avenue.

21C. East Jersey Water Company, filtration plant, Little Falls, N. J. and Hackensack Water Company, New Milford, N. J.

21D. Mt. Prospect Laboratory.

22. Sewage:—

22A. Passaic Valley Sewage Plant, Newark, N. J.

22B. Dyckman Street Sewage Screens.

23. Streets:—

City Street Cleaning Department, model street-cleaning area.

24. Garbage:—

Newark, N. J., Garbage Disposal Plant.

Communicable Diseases (Including Venereal Diseases and Tuberculosis)

Dr. L. I. Harris, Chairman; Dr. William H. Snow, Vice-Chairman.

25. Typical clinics—rabies, typhoid, tuberculosis, etc. Various localities, according to number enrolling.

26. Machinery of City Health Department for isolation and quarantine. Stuyvesant Unit, 540 East 13th Street.

27. Tuberculosis and contagious disease hospitals. Willard Parker Hospital, foot of East 16th Street.

28. Regional Conference on Venereal Disease Control. Jersey City Municipal Hospital. Auspices of New Jersey State Department of Health, Bureau of Venereal Disease Control. Demonstration of preparation and use of arsphenamine, mercury, Wassermanns, etc.

29. Demonstration of Schick Test (See 11 above).

Laboratories

Dr. W. H. Park, Chairman.

30. Visit to Rockefeller Institute, Avenue A and 66th Street.

31. All day trip and visit to Lederle Laboratories, Pearl River, N. Y. (Also open to Food and Drug, Public Health Nursing, Communicable Diseases, and Industrial Hygiene Sections.)

32. City Laboratories, foot East 16th Street. State Laboratory, 338 East 26th Street, and Bellevue Hospital Laboratory, foot East 26th Street.

33. Quarantine Station, Staten Island.

Food and Drugs

Dr. Payne B. Parsons, Chairman.

34. U. S. Bureau of Chemistry Laboratory, 641 Washington Street.

35. Methods of milk pasteurization, City Department of Health.

36. City machinery for inspection and supervision of markets.

Industrial Hygiene

Dr. C. E. Ford, Chairman.

37. Industrial Hygiene work of City Department of Health, including occupational disease clinics.

38. Welfare work of the Metropolitan Life Insurance Co.

39. Medical departments of typical industrial plants of metropolitan district. Daily demonstrations at the clinics of the American Telephone and Telegraph Co., 161 Broadway.

40. Union Health Center. Medical Department and labor union industrial clinic, 131 East 17th Street.

While not as yet definitely scheduled, tentative arrangements are also being made, for study by those interested, of additional activities in or near New York City in other special fields of public health, such as mental hygiene, school hygiene, tuberculosis, etc.

Available in the field of mental hygiene are such activities, for instance, as:

Ward's Island Psychiatric Institute, the Neurological Institute, the Mental Clinic and Psychiatric Social Work at the Vanderbilt Clinic, the Juvenile Delinquency Court Work, the Letchworth Village Model Institute for the Feeble-Minded, etc.

Certain of these activities will probably be scheduled in the final program, and special arrangements may be made for their study, depending upon the expression of interests on the part of those planning to attend the Institute.

A nominal fee, amounting to not more than ten dollars ($10.00) will be charged in connection with the Health Institute.

PROGRAM OF HEALTH INSTITUTE
(Tentative and incomplete arrangement.)

	Tuesday Nov. 8		Wednesday Nov. 9		Thursday Nov. 10		Friday Nov. 11	
	Morn.	Aft.	Morn.	Aft.	Morn.	Aft.	Morn.	Aft.
Vital Statistics	1	*	2	*	3	4	5	*
Mother and Child	9	*	8	11	6	*	7	*
Public Health Nursing	*	*	*	*	*	15	*	*
Socio-Health	*	17	*	18	*	*	19	20
Sanitary Engineering	21A	21B	22A	24	21C	23	22B	21D
Communicable Diseases	*	25	26	*	27	28	*	*
Laboratory	30	33	32	*	*	*	31	31
Food and Drugs	*	35	*	*	34	36	*	*
Industrial Hygiene	39	37	40	*	38	*	*	*

(Numbers correspond with those in accompanying discussion.)
*Indicates that members of this section may attend other sessions, or that other sessions are planned.

CUT HERE

HEALTH INSTITUTE

Dr. Donald B. Armstrong,
370 Seventh Avenue, New York City.

I expect to attend the Health Institute, New York City, November 8-11, 1921.
I am interested in the following demonstrations as outlined in your announcement. (List numbers only of demonstrations as indicated in proceding announcement. If you want other demonstrations, describe briefly on margin.)

Name .....
Position .....
Address .....
.....

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to Boston office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in Boston, Mass. In replying give age, professional training, salary requirements, previous positions held and three or more references.

Wanted: Assistant bacteriologist in health Department Laboratory of large Southern city; unusual opportunity; also technician. Address 462, C. O. S., care of this JOURNAL, New York address.

Wanted: Assistant health officer in large Southern city. Applicants should state education, experience, salary desired. Address 464, W. M., care of this JOURNAL, New York address.

Wanted: Milk inspector capable of directing dairy and general food inspections in city of 50,000. Experience necessary. Salary $2,500 per year. Apply with full particulars concerning training and experience to Dr. R. L. Carlton, Health Officer, Winston-Salem, N. C.

Also: Veterinarian to do meat inspection work with City Health Department. Salary $2,500 per year. Apply with full particulars to Dr. R. L. Carlton, Health Officer, Winston-Salem, N. C.

Wanted: House physician. Cases, male ambulatory pulmonary tuberculosis. Salary, $2,000 and expenses. To begin as soon as selected. Address Mount Madison Sanatorium, Gorham, N. H.

Wanted: Competent physician to take charge of tuberculosis sanatorium as medical director at the Tri-County Sanatorium, 18 miles north of Bemidji, Minnesota, at Puposky, on the Red Lake Railway. Must be qualified to practice in Minnesota, capable, honest and efficient. Room and board furnished. Reply at once, stating salary wanted, qualifications, and give references. Address P. A. Walling, M. D., Commissioner, Park Rapids, Minnesota.

Wanted: Assistant bacteriologist. Apply to State Hygiene Laboratory, Charleston, W. Va.

POSITION WANTED

Positions wanted announcements will henceforth be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 10th of the month.

Wanted: Physician of mature years and wide experience, excellent executive and good business man, wishes position as superintendent of health in large or middle-sized northern or western city, with well-organized and equipped department. Salary not less than $3,600. Best professional and business references. Address 176, G. M. R., care of this JOURNAL, New York address.

Wanted: Bacteriologist desires position as director of a city laboratory; woman; B.S. degree; seven years' experience in hospital, state and city laboratories (two as director of city laboratory); trained in general bacteriology, including milk and water; serology, clinical pathology and some blood chemistry. Public health work preferred, but a hospital position considered. Address 178, S. P. M., care of this JOURNAL, New York address.

Wanted: Position wanted by sanitarian; many years' experience in tropical sanitation, including drainage. Can give highest reference. Speak Spanish. Address Box 499, Balboa, Canal Zone.

Wanted: Bacteriologist, holding B. S. from leading Middle Western university and with several years' experience in public-health laboratory work in South, desires change. Capable of directing and handling all phases of public-health laboratory work, clinical microscopic diagnosis and serology. One year in charge of city and county laboratory. At present assistant director in large Southern city. Address 179, M. G. R., care of this JOURNAL, New York address.

Wanted: Experienced food and dairy inspector will be open for engagement October 1. Broad knowledge and training in public-health work. Six years' experience in food, milk, and meat inspection, including laboratory examinations. References from state and city officials. Address 183, J. W., care of this JOURNAL, New York address.

Wanted: Full-time health officer, with B. S. and M. D. degrees from standard universities, and wide and varied experience in

public-health work, is now open for a position with state, county, or city health department. Has held positions with U. S. Public Health Service and served as full-time city and county health officer for a number of years. Would also consider position with industrial corporation. Southern states preferred. Can furnish any kind of business or professional references desired. Address 185, S. C., care of this JOURNAL, New York address.

Wanted: Bacteriologist and chemist (graduate), of London, wishes position. Several years' experience in public health, state and municipal. Has had directing and handling of all phases of public-health laboratory work, including serology. At present at university in New York City. Address 186, B. T., care of this JOURNAL, New York address.

Wanted: By M. D., graduate of class A school, with college training. Public-health, teaching, institutional, or laboratory position in Philadelphia or East. At present director of one of the largest public-health laboratories in the South. Wide executive and technical experience. Address 187, L. D., care of this JOURNAL, New York address.

Wanted: Dairy, milk, and food inspector, fourteen years' experience, also trained in laboratory analysis and diagnostic work, assistant sanitarian, U. S. P. H. S. (Reserve). At present director, Food Inspection Division of Health Department in Southern city of 50,000. Satisfactory references furnished. Address 188, H. J., care of this JOURNAL, New York address.

Wanted: Health work by trained and experienced sanitarian, with county, state and municipal experience as executive officer and director of health education. Ph. G., M. D., Dr. P. H. Address 189, W. P., care of this JOURNAL, New York address.

Wanted: Max J. Colton, formerly health officer of Cumberland, Maryland, later regional consultant, Division of Venereal Diseases, U. S. P. H. S., now connected with medical relief organization doing medical and sanitary work in Poland, desires an engagement, to take effect on or about January 1, 1922. Address 1422 Mayfield Street, Philadelphia, Pa.

BOOKS AND REPORTS REVIEWED

Nutrition and Clinical Dietetics. *Herbert S. Carter, M.D.; Paul E. Howe, Ph.D., and Howard H. Mason, M.D. Philadelphia: Lea & Febiger, Second Edition, 1921. Pp. 703. Price, $7.50.*

The material in this large work is conveniently organized in four parts. The first section is devoted to the Physiology of Nutrition. The treatment is compact, clear and up to date. This is followed by a discussion of the principal foods from a chemical point of view. The third part is devoted to Feeding in Infancy and Childhood. The concluding division, amounting to more than half the book, has to do with Feeding in Disease. Thus the scope of the volume is widely inclusive. To approximate its contents elsewhere several books would have to be assembled.

It seems to the reviewer that an ambitious project has been exceedingly well carried out. The coöperation of the three authors has been highly successful; the result is marked by good proportion and good sense. The number of references to original sources is not large, but the selection shows discrimination. A student seeking a bibliography will still go to Lusk's *Elements of the Science of Nutrition,* but the present full and practical treatise must be of the greatest value to the physician facing concrete problems.

PERCY G. STILES.

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Tuberculosis and How to Combat It. *Francis M. Pottenger, M. D., F. A. C. P. St. Louis: C. V. Mosby Co. 1921. Pp. 273. Price, $2.00.*

Many excellent books have been written for the benefit of the layman or laywoman who has tuberculosis and who wishes to know something about it. Such books must necessarily vary according to the individual ideas of the physician and according to the classes of patients that the physician meets and for whom he intends his book. For this reason Dr. Pottenger's present volume varies widely from that of Dr. Lawrason Brown as well as from one for which the

writer himself is responsible. Dr. Pottenger was once heard to say that by the time his patients had taken the trip across the Continent in order to gain health in the Far West, a serious step and one not taken with some thought, they were ready to do precisely what the physician asked them to do. It might have been added that he who would cross a continent for his health must have at least moderate means. Bearing in mind, therefore, that the book is intended for patients who are distinctly different from the ordinary ones in the East, and indeed for a selected group, (from this point of view) the book is most admirable. It seems to me, however, that this will include only a comparatively small percentage, perhaps one-quarter or one-fifth, for whom a book containing less knowledge and put in more elementary fashion would be more suitable.

I do not believe, for instance, that the average patient with tuberculosis cares about, or is interested in, calories. Diabetics and fat men and women, in my own experience at least, are the chief persons who are willing to delve into the exact number of calories contained in a spoonful of food. The difference between tuberculous infection and tuberculous disease, although of paramount importance, likewise is something which it is doubtful if it would appeal or be of real value to a fairly large proportion of men and women with consumption. In Chapter VI entitled, "How Does Tuberculosis Affect the Patient?" the dividing of patients into six groups is almost a medical classification, the subject itself being a medical one rather than one for the laity. On the other hand, his chapter entitled, "Early Tuberculosis Must Be Taken Seriously," is an excellent one and cannot be given too great emphasis. His chapter entitled, "What to Do When a Diagnosis of Tuberculosis Is Made" demonstrates that the book is not for the patient with a poor purse or lower grade of intelligence. He is advised to go to a physician or a specialist, but no mention is made of the opportunity to get advice from an out-patient department, a dispensary, the local association or the local or state board of health.

His remarks on "Rest" are excellent, emphasizing as they do that few people know how to rest and that lying in or on a bed does not necessarily constitute rest. His chapter on "Tuberculin" is interesting. Opinions, of course, vary widely as to the value of tuberculin in pulmonary forms of tuberculosis. Personally, I am opposed to it; Dr. Pottenger is one of its most ardent advocates. I think that on the whole this book would be improved by omitting tuberculin treatment or by simply stating that the patient should have no attitude toward this question but should do what his physician advises in regard to this much disputed subject. What he says in Chapter XVI in regard to reducing the amount of coughing is most important, as are the remarks he makes in regard to pain and hemorrhage.

There are many subjects discussed in this book which are not found in others. Fog and rain, much feared by consumptives, are given their proper place. His chapter on "Coöperation" is excellent, as likewise is the chapter on the need of outlining a definite program.

There is an immense amount of useful and valuable information in this book and there are many patients who will be greatly benefited by making a careful study of it. My own criticism of it would be that there are likewise many patients whose intelligence is not of a sufficiently high grade to profit greatly by the volume.—JOHN B. HAWES, 2ND, M.D.

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Health Book for Blind.—The blind are to be given an opportunity to become conversant with authoritative rules of health, the American Red Cross having arranged for the early translation of its text book, "Home Hygiene and Care of the Sick," into Braille. The remarkable progress made by blind students in home hygiene and care of the sick classes has warranted reproducing the text book in a manner that will make it available to the sightless everywhere, whether in school or out. Where the courses have already been offered the blind the students have proved apt, despite their handicap. In practically every country in which the Red Cross is operating the text book has become the recognized health authority in thousands of homes.—(*J. A. T.*)

PUBLIC HEALTH NOTES

Abstracts by D. Greene, M. D., M. P. Horwood, Ph.D., James A. Tobey and Homer N. Calver.

National Health Departments in Review.—The ancient Hebrews had a system of medical police, the Greeks appointed public physicians, and the Romans are famous for their public sanitary engineering. Probably the first real Board of Health was that of the Venetian Republic, appointed in 1348 as a result of the ravages of the Black Death. In 1762 a sanitary council was established in every Prussian province, and England passed a number of health laws at the beginning of the nineteenth century. The second great pandemic of cholera from 1840 to 1850 resulted in the organization of Conseils d'Hygiene in France in 1840, and the Public Health Act in England in 1848. The first board of health in this country was that of Louisiana, established at New Orleans in 1855, and followed by those of Massachusetts in 1869, and California in 1870. The yellow fever epidemic in 1878 led Congress to create a National Board of Health, which went out of existence because of lack of appropriations. Its place was taken by the United States Marine Hospital Service in 1883, which became the United States Public Health Service in 1912.

The writers give in detail the health activities of 39 countries, noting also that of the seventy countries listed in the Statesman's Year Book for 1920, eleven have really independent Ministries of Health, as follows: England and Wales, Ireland, Scotland, Canada, France, Czecho-Slovakia, Poland, Kingdom of the Serbs, Croats, and Slovenes, Brazil, Cuba, and Santo Domingo. Of twenty-nine others about which reliable data are available twenty-one have departments of health under the Ministry of the Interior, two under the Ministry of Education, and one each under the Ministries of Labor, Social Affairs, Public Works, and Development. The public health work of the United States is controlled by ten cabinet officers.—Homer N. Calver and James A. Tobey, Washington, D. C., *The Nation's Health*, July, 1921, 391-4.

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Infant Mortality Rises in 1920.—Public health workers all over the country are again put under obligation to Dr. Philip Van Ingen and the American Child Hygiene Association for their early report on infant mortality in American cities.* The report this year is larger and more instructive than ever and represents much work and patience. It covers 519 cities out of a possible total of 657 with populations over 10,000 in the death registration area of the United States.

The infant mortality rate in this group of cities was 90.5 in 1920 as compared with 89.0 in 1919. The increase was slight, but that there should be any at all is disconcerting. Further examination of the figures shows that the increase in the infant mortality rate occurred in cities with populations of more than 50,000 and did not occur in the cities under 50,000. The city of New York, for example, gives 85 infant deaths per 1,000 births in 1920, as compared with 81 in 1919; and in Boston the rate rose from 97 to 101. These are discouraging facts, because in both these cities serious efforts have been made for a number of years to cut the infant mortality rate through extensive prenatal care of mothers. The cities of twenty-five to fifty thousand population appear to have the worst conditions.

The most interesting fact in the array of figures in this report is the marked variation in the infant mortality rate of American cities. In each one of the groups of cities, arranged according to size, there are some whose infant mortality rates are at least twice as high as in the best. It is difficult to understand why in 1920 there should still be nine cities in this list of 519 where the infant mortality rates are in excess of 150. On the other hand, there is very much that is encouraging in the report. There are now 25 cities whose infant death rate is 50 or less. Each one of these places serves as a constant reminder to those others whose infant mortality rates are 100 or more, that they are in a very real sense permitting in-

*This report, entitled "Statistical Report of Infant Mortality for 1920," can be obtained from the American Child Hygiene Association 1211 Cathedral Street, Baltimore, Md. The Association also publishes "Digest of Programs, National Organizations Carrying On Some Phase of Child Welfare, 1921," a valuable synopsis of the child-welfare activities of 78 national social and health agencies.

fanticide. There is no good excuse whatever for infant mortality rates of 100 or more in the cities of the United States and Canada at the present time.—L. I. Dublin, *Statistical Bulletin*, Met. Life Ins. Co., July, 1921.

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Measurement of the Economic Status of Families.—Broad popular distinctions of economic status, such as rich, well-to-do, poor, etc., are always relative to period, community, and several other factors, chief of which is the composition of the family group. For careful scientific research in budgetary studies, economics, or public health, a more refined tool is necessary. Using the scales devised by W. O. Atwater, of the Department of Agriculture, as a basis, which deal with food supply of the individual in terms of calories, the authors endeavored to evolve tables of units of *demand* for food as well as general commodities, corrected for age and sex. They thus secured two units which they named the *fammain* and the *ammain*, defined as follows: 1. Fammain, a demand for food of a money value equal to that demanded by the average male in the given class at the age when the expense for his food reaches a maximum. 2. Ammain, a gross demand for articles of consumption having a total money value equal to that demanded by the average male in that class at the age when his total requirements for expense of maintenance reach a maximum. By aggregating the "fammains" and "ammains" of a given family, according to the age and sex of the various members, and securing the ratios of these totals to total annual expenditure for food, and to total annual family income, respectively, one is thus enabled to make a valid comparison of two or more families, considered either as a dietary or an economic group. The data presented applied to working-class families in the cotton-mills of South Carolina, and it is of course essential that any such comparisons should be applied only to families that are fairly homogeneous in social status and other environmental factors. Similar studies could, however, be worked out for any broad groups.—Edgar Sydenstricker and Willford I. King, *Quarterly Publications* of the American Statistical Association, September, 1921. (*K. M. G.*)

How American Cities Dispose of Garbage.—Statistics of 37 American cities show that 10 dispose of their garbage by reduction, 9 feed to hogs, one uses both of these methods, 3 incinerate, 2 deliver to farmers, 2 place the garbage on dumps and one uses a digester system. Eight cities combine the collection of garbage with that of other city wastes. Most of these use the method of sanitary fill.—*American City*, August, 1921. (*J. A. T.*)

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Importation and Sale of Opium, Cocaine, Coca and Their Derivatives in Chile.—Opium, cocaine, coca and their derivatives, according to a regulation approved February 14 by the government of Chile, may be imported only for medical or pharmaceutical purposes. The director of health will determine the size of the importation. Every distributor of these drugs is obliged to keep a sales record, showing the quantity sold to every purchaser, the purchaser's name and the date of sale.—*Pan-American Bulletin*, June, 1921. (*J. A. T.*)

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Eye Strain in Motion Picture Theaters.—Last year a letter was sent by the London County Council to the Illuminating Engineering Society asking for information with regard to "possible causes of eye strain in cinemas and the best means of removing them." A joint committee of representatives of the Council of British Ophthalmologists, of the cinema industry, the Illuminating Engineering Society, the Physiological Society, and the medical officers of the London County Council, was constituted to inquire into the matter. The pronouncement is made that the angle of elevation subtended at the eye of a person in the front row between a horizontal line and one running to the top of the picture should not exceed 35 degrees. This angular measurement was considered the best way to express such composite factors as size of picture, elevation of screen, and distance. The angle stated was found not to cause visual discomfort through the sustained effort of raising the eyes to view a high picture. On similar grounds it was considered that the lateral angle should be limited to 25 degrees. The maximum distance from the screen to the farthest seats should not be more than twelve times the height of the picture—that

is to say, the angle of view should not be less than 5 degrees; but on this point the committee does not make a definite recommendation, as in no case was the limit suggested exceeded. Other questions considered were flicker, imperfections of the film, mechanical defects, nature and brightness of the screen, permissible amount of general light in the hall, and portable outfits for use in schools. Two kinds of flicker were distinguished: a physiologic flicker due to alterations of light and dark, accentuated by strong contrasts in the picture and more apparent at the periphery of the retina, and flicker due to disintegration of the separate pictures, which is most noticeable near the screen. Other conditions which disturb vision are scratches and tears in the film, worn sprocket-holes, instability of projection apparatus, and faulty manipulation; but on these points the committee did not see its way to set up a criterion by which to condemn the exhibition of any particular hall. In the matter of brightness of picture much depends on the quality of the screen. A semipolished aluminum screen was found to give the brightest picture for those directly in front, but this advantage is counteracted by the serious diminution of light when viewed from the side seats. On the whole, the committee were disposed to favor a dead-white screen as the best for common use. As to general illumination of the hall, the committee is satisfied that the present regulations requiring an intensity of not less than one-fortieth of a foot candle is reasonable and does not prejudice the picture on the screen; but they think that it would be an advantage to graduate the lighting so that the back of the hall should be better illuminated than the front, which derives a fair amount of light from the screen. The method of graduated lighting would be a great advantage to people coming in from the bright outdoor light, and would not interfere with a proper view of the picture. Of course, no unshaded source of light should be visible to an observer looking toward the screen.—Foreign Letter, *Jour. A. M. A.*, May 28, 1921, 1510. (*D. G.*)

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British Ministry Denies Support to Self-Disinfection Policy.—The British Ministry of Health, after carefully considering the final report of the Royal Commission on Venereal Diseases and that of an interdepartmental committee appointed by the Minister of Health, has officially declared that the government cannot give support to self-disinfection as a policy.

In its statement issued under date of May 31, 1921, a copy of which has been received by the American Social Hygiene Association, the Ministry states its decision thus: "The actual situation which confronts the government is that there is not unanimity of opinion on the medical side as to the practicability and likelihood of success of self-disinfection for the civil population, whereas on the moral and social side most weighty objections are advanced against it. It is clear that this question is one which cannot be decided solely by reference to medical opinion: moral and social considerations of very great importance are involved in it. In the circumstances the government has decided that they cannot give official support to self-disinfection as a policy."

This pronouncement, it is claimed, will go far toward ending the controversy on the merits of the immediate treatment or so-called prophylactic packet, which has been carried on in England for a considerable length of time.—*Social Hygiene Bull.*, August, 1921. (*D. G.*)

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Temperament in Nursing.—"The Rôle of Temperament" is the first in a series of articles on "The Element of Personality in Nursing," by Donald A. Laird. Professor Laird admits that no training school can infallibly produce a nurse who is "always cheerful, always consistent, always considerate." He believes, nevertheless, that any intelligent person can learn to control his mental states. The relations between the nurse and the suggestable patient are discussed at length.

Other articles are on "The Work of the Private Duty Nurse," by Minnie S. Hollingsworth, R. N., "Odds and Ends of Useful Information," by O. W. Nolen, and "The Problem of the Hour," by Charles P. Bancroft, M. D.—*Am. Jour. of Nursing*, July, 1921. (*M. B. D.*)

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Broncho-Pulmonary Spirochetosis.—The occurrance of broncho-pulmonary spirochetosis is comparatively rare. This circumstance, together with the peculiar char-

acteristics of the disease, makes it a particularly individual problem. The victims of this disease are apparently suffering from tuberculosis. They have recurring hemoptysis for months. Usually chronic bronchitis, with loss of weight, emaciation and a chronic cough ensue. Hemorrhages sometimes last for weeks and then may stop for weeks. These cases are not tuberculosis, however, for upon examination of the sputum no tubercle bacilli are found, but large numbers of motile spirochetes. Bloedorn and Houghton in a report of three cases found that these organisms are more refractive and active than the *Treponema pallidum*, and that they tended to be of two distinct types. One type was thin, delicate and threadlike, with more regular and numerous indulations; the other type was coarser, with few indulations and heavier staining.

There has been little investigation made upon this disease. Castellani first described it in 1906. Since then there have been reports of cases occurring for the most part in the tropical climates. It is probable that the disease is more common in the United States than is realized, but because of its close symptomatic resemblance to tuberculosis, it is seldom recognized until the sputum is examined and the characteristic organism identified. Cases respond to treatment with arsphenamins very readily. There have been cases which when treated for tuberculosis were considered hopeless, but when treated with arsphenamin, have recovered completely.

In view of the fact that this disease is more prevalent than is realized and that it does respond to treatment, it is important that every case of supposed tuberculosis that does not show tubercle bacilli in the sputum should be carefully examined for spirochetosis and syphilis. Prompt and intensive treatment with the arsphenamins may be expected to produce well-nigh miraculous results.—*(A. N. T.)*

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General Hospitals and T. B. Patients.—The opening of wards in general hospitals for tuberculous patients, as recommended by the American Medical Association at its recent annual meeting in Boston, will, it is believed by the U. S. Public Health Service, be of enormous benefit not only to most of the two million known victims of the disease in the United States, but also to thousands of others in whom the disease is incipient and easily suppressible, if promptly treated. Tuberculosis in this stage is difficult and often impossible of positive diagnosis, even by an expert; and many persons, even when told by their family doctor that their case is "suspicious" and that they should take precautionary treatment, fear the stigma of an avowed tuberculosis hospital and put off action until recovery has become long and difficult. In a general hospital the diagnosis will not be made public and the family will not be embarrassed, but at the same time all necessary precautions can be taken to avoid danger of infection to others.

The resolution was prepared and recommended by the National Tuberculosis Association in 1916; its approval now by the American Medical Association shows a very marked change in medical sentiment.

In support of the new policy it is argued that in many small cities two hospitals, one general and one tuberculosis, can be run only at a loss, but if combined, would pay operating expenses, especially as the combined hospital would draw many secret tuberculous cases. Many general hospitals could easily enlarge their facilities by fitting up wards, roofs, porches and unused open-air spaces and thus provide greatly needed space for tuberculous patients, both former army men and civilians.

The routine treatment of tuberculosis patients in all general hospitals, instead of as at present in only about one-eighth of those in the country should enable people in modern circumstances to obtain preliminary treatment in their home towns instead of being forced to go without or to go to resorts. Such preliminary treatment would habituate the patient to the regimen essential to his cure and to the protection of others and would enable him to go back to his home and get well under home treatment, as he probably would not have done without such training.

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National Cancer Work.—The American Society for the Control of Cancer is making arrangements for a National Cancer Week to be held throughout the United States and Canada from October 30 to November 5, 1921. This is the first attempt on the part of the society to carry out a uniform campaign at one time throughout the country

and it earnestly bespeaks the coöperation of all national, state and local agencies interested in public health at that time.

The campaign will be devoted to three principal lines of education:

1. The giving of lectures by well-known physicians and surgeons who have volunteered for this service and who compose the lecture bureaus of the state and local committees for cancer control recently organized by the society.

2. The distribution of literature at all meetings held during the week.

3. Suitable publicity in the lay press and official health bulletins and medical journals.

It is hoped that all state and local boards of health, state and county medical societies, nursing organizations and others which publish regular journals or bulletins will carry notices of this campaign and will assist in all suitable ways to bring the "week" to the attention of their readers. The fullest coöperation is also desired from all field agents and nurses of such agencies. Many of them are in a position to assist materially in the arrangement for lectures and all interested are urged to get in touch with the chairman of the local committee for the control of cancer operating in their state or local communities, or to communicate with the headquarters of the society at 25 West Forty-fifth street, New York City.

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A Nutrition Bibliography.—The Bibliography Committee of the New York Nutrition Committee has prepared a Nutrition Bibliography, which is issued in a 30-page pamphlet by the Health Service of the New York County Chapter of the American Red Cross. The bibliography is divided into five classes: Nutrition, Growth and Standards of Development; Malnutrition; Methods of Organizing Nutrition Work; Health Essentials and Teaching Methods; Health Material for Children's Use. A list of bibliographies, directory of publishers, is given as an appendix. While the material is not entirely complete, this bibliography is most useful as a compilation of references to an important subject in public health.—(*J. A. T.*)

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National Education Association.—The Child Hygiene Department of the National Education Association at the annual meeting of the Association held in Des Moines in July elected as president Dr. O. B. Nesbit, director of medical inspection in the public schools at Gary, Ind. Dr. William A. Howe of Albany, state medical inspector of schools of New York and president of the American School Hygiene Association, was elected secretary. Good programs and a large attendance are reported from the Des Moines meeting.

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Statistical Consultation Service.—One of the interstaff committees recently organized by the National Health Council in the Penn Terminal Building is the Joint Functional Group on Statistics. The primary participants in this group are the three organizations of the National Health Council which employ full-time statisticians. The personnel of the group is at present as follows: Miss Edith M. Furbush, National Committee for Mental Hygiene; Miss Mary A. Clark, American Social Hygiene Association; Miss Jessamine S. Whitney, Secretary, National Tuberculosis Association; Dr. Louis I. Dublin, advisory member; Dr. Donald B. Armstrong (Chairman ex-officio), Common Service Committee and National Health Council.

While this group has been primarily concerned with the common statistical interests of the organizations represented, it wishes to be helpful, in the consideration of statistical problems, not only to the organizations directly represented, but also to other affiliated agencies, which do not employ statisticians, either among the Common Service Committee tenants or in the National Health Council at large.

Practically all organizations undertake statistical activities of one kind or another from time to time. It may be that some health agency, not perhaps sufficiently concerned with statistics to employ a statistician, would nevertheless like to have advisory suggestions of the Statistical Group with reference to a projected piece of statistical work.

It has been suggested that the Statistical Conference Group might know where similar studies had been made, whether such studies were feasible, what original sources of information were available, what would be a suitable form for collecting the information, the cost and time involved, methods as to where or by whom the work might be done, etc.

LEGISLATION—FEDERAL

From bi-weekly reports of the National Health Council, July 22-August 24, 1921.

PLANS OF CONGRESS

Congress recessed on August 25 for four weeks. All pending legislation will continue as such after the recess and if not acted on at the end of the special session will automatically come before the regular session of the Sixty-seventh Congress. These reports will be resumed immediately after the recess.

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

S. 1039. Sheppard-Towner Bill for Protection of Maternity and Infancy. On July 22, 1921, the Sheppard-Towner Bill passed the Senate by a vote of 63 to 7. The measure was adopted by the upper branch of congress without any important changes. A rather spirited debate concerning the bill took place in the Senate. Three efforts were made to change the bill by amendments. The first, presented by Senator Reed, attempted to reduce an appropriation of $1,000,000 a year for the use of the states in caring for mothers and infants to $500,000. It was defeated. The second, introduced by Senator Moses, provided that the United States Public Health Service of the Treasury Department should administer the act instead of the Children's Bureau of the Department of Labor. This amendment was defeated by a vote of 61 to 9. An amendment by Senator King, which would have appropriated an additional $1,000,000 for the protection of maternity and infancy, was also rejected.

Meanwhile, the House Committee on Interstate and Foreign Commerce has continued to hold hearings and take testimony on the measure in preparation for its appearance before the House. On July 21 Brig. Gen. C. E. Sawyer, the President's physician, appeared and described how the bill would fit into a scheme for a department of welfare. Another witness on the same day was Dr. Charles O'Donovan of Baltimore, who opposed the bill as an invasion of states' rights. Mrs. William Lowell Putnam of Boston appeared in opposition on the following day, as did also representatives of the National Association opposed to Woman Suffrage. Surgeon General H. S. Cumming and Assistant Surgeons General L. L. Lumsden and J. W. Schereschewsky of the Public Health Service presented arguments in favor of the administration of the bill by the Public Health Service. Miss Alice M. Robertson, member of Congress from Oklahoma, opposed the measure. Others who appeared in opposition were Col. C. R. Keiley of the Virginia Council of Defense; Dr. E. G. Williams, State Health Officer of Virginia, and Mrs. Henry Lockwood, president of the Virginia Federation of Women's Clubs.

On July 23, Representative Towner introduced into the testimony a letter from the Assistant Secretary of the Treasury to the Secretary of Labor, which stated that the Treasury Department had no objections to the administrative features of the bill and should it pass the Public Health Service would render every assistance possible to the Children's Bureau. This letter was written after a conference on July 23 at which were present the Secretary of Labor, the Assistant Secretary of the Treasury (acting for the Secretary), the Chief of the Children's Bureau and the Surgeon General of the Public Health Service.

On the same day Miss Julia C. Lathrop, Chief of the Children's Bureau, was called to speak for the bill, as was also Mrs. Maud W. Park of the Women's Committee on the Sheppard-Towner Bill.

The hearings ended at 5 p. m. on July 23. They were notable for the interest taken by the members of the committee and for the many intelligent questions asked by them. The general reaction toward the bill appears to be favorable. The hearings were too lengthy to reproduce here, other than by mentioning the witnesses. Copies of the hearings can be obtained from the National Health Council or from the congressmen.

H. R. 6611. Sweet Bill Creating a Veterans' Bureau. This measure, which had passed both houses of congress, was sent to conference. (See Statement No. 9, page 3.) An agreement was speedily reached and the Senate adopted the report on August 1, 1921, without a record vote. In the House the adoption was ordered by a vote of 267 to 4 on August 2, 1921. The bill has been outlined in various reports. As it finally passed, it provides for the consolidation of the Bureau of War Risk Insurance, the part of the Public Health Service concerned with hospitalization, medical care and treatment

of ex-service men, and the Federal Board for Vocational Education into a Veterans' Bureau directly under the jurisdiction of the President.

The present law limits the medical care and treatment of incapacitated veterans to those suffering with a service disease or injury of 10 per cent or more. This bill extends medical care and treatment to all service men suffering with disease or injury of service origin or aggravation of less than 10 per cent. Many dental, eye, ear, nose and throat cases, where the disability is less than 10 per cent, may be cared for under the revised law. There is a limitation, however, to the provision of this law, namely, that the application for treatment must be made within one year from the passage of the act. Of course, the time of treatment may extend over the period of one year from the date it is granted.

Compensation and vocational training remain as under the present law. Section 27 of the bill provides that men suffering with disability of service origin may reinstate their lapsed insurance by the payment of all back premiums, providing they are not permanently or totally disabled. Under the present law and the rules and regulations of the Bureau of War Risk Insurance no insurance policy can be reinstated unless it is proved that the insured is in as good physical condition at the time of reinstatement as at the time his policy lapsed.

Under the present law no compensation can be claimed or paid unless death or disability occurred prior to or within one year after discharge or resignation from the service. Section 21 of this measure extends the time for filing claims to within a period of one year after the passage of this amendatory act. This is a very important provision. Technically, under existing law, all tuberculosis and neuro-psychiatric diseases which did not emerge and become active within one year after date of discharge were debarred compensation.

An amendment, proposed by Senator Walsh when the bill was under discussion in the Senate and added in the Senate bill and agreed upon in conference, will further extend the benefits of the present law by relieving applicants for compensation suffering with tubercular and neuro-psychiatric diseases, which developed within two years, from the necessity of proving that said disease was contracted in the service.

The President signed the Sweet Bill on August 9, 1921, it thus becoming a law. At the same time he sent to the Senate the nomination of Col. C. R. Forbes, Director of the Bureau of War Risk Insurance, to be head of the Veterans' Bureau. This nomination has been confirmed. Major A. D. Dean of New York has been appointed assistant director of the new bureau.

The Senate Committee, headed by Senator Sutherland, which is investigating Soldier Relief and Hospitalization of former service men, has continued its hearings.

On July 25 Surgeon General H. C. Cumming of the Public Health Service gave a history of the attempts to get sufficient money from Congress for hospitals and outlined the work of the service before the war. He stated that 64 hospitals, 42 general, 10 mental and 12 tuberculosis, are now in use. Allegations that dentists had been guilty of graft in treating former service men were made by Dr. William S. Terriberry, Assistant Surgeon General of the U. S. Public Health Service. He testified that the names of 37 dentists had been given the Department of Justice for prosecution.

On July 26 Dr. Cumming continued his testimony. Dr. Thomas W. Salmon also spoke, as did Dr. H. A. Pattison of the National Tuberculosis Association. Assistant Surgeon General C. H. Lavinder of the Public Health Service told of hospitalization conditions. He stated that in 1921 there were 137,713 patients, 970 full-time doctors, 238 attending specialists, 1,525 nurses and 9,448 other employees. The cost per patient per day was $3.68.

Dr. Haven Emerson, Medical Director of the Bureau of War Risk Insurance, appeared on July 26 and described the work of his bureau.

On July 28 Dr. W. C. White, chairman of the Hospitalization Board appointed by Secretary Mellon of the Treasury Department, explained the plans of his committee for the expenditure of the money appropriated by congress for improving and enlarging hospitals. Dr. White stated that his board had recommended the expenditure of an additional $16,400,000, which would make a total of $35,000,000. He also testified that the report of the Dawes Commission submitted to President Harding last spring was drafted by him and his consultants. On July

28 Col. Charles R. Forbes, Director of the Bureau of War Risk Insurance, gave evidence, in which he declared that an entire physical re-examination of war veterans was a necessity and that applications were coming into the bureau at the rate of 1,000 every day. Most of these applications were mental and nervous cases, he said.

H. R. 7294. S. 2116. Willis-Campbell Bill Supplemental to National Prohibition Act. This bill passed the Senate on August 8 by a vote of 39 to 20. An important amendment was added, namely, that search of private property without a search warrant should be prohibited. The medical features remained unchanged. The bill went to conference, having been passed by the House July 6. Considerable difference of opinion developed in conference concerning the amendment. The Senate failed to adopt the conference report as finally made and so the bill did not pass and will go over until after the recess. There was much discussion of the bill up to the last minute, midnight, August 24.

S. 1607. H. R. 5837. Fess-Kenyon Bill for a Department of Public Welfare. Since many requests as to the status of this bill have been received, it may be stated that the bill has not yet been reported from committee. It has been suggested that action is being deferred until the Smoot-Reavis Joint Committee on Reorganization makes its report. A scheme for a similar department is included in this committee's plans.

Dr. L. K. Frankel, director of the Division of Welfare of the Post Office Department, left on August 1 on a six weeks' tour of inspection of the more important post-offices in the country. The National Health Council has favorably voted on a request from Dr. Frankel that the Washington representative of the council, Mr. James A. Tobey, be assigned to assist Dr. Frankel for part time work. Mr. Tobey has, accordingly, done this since the middle of July, in addition to his regular work. Dr. Frankel has also made an arrangement with the American Red Cross whereby that organization will help in furnishing first-aid material and give courses in first aid and possibly home hygiene to post-office employees. The U. S. Public Health Service is to make periodic inspections of post-offices to ascertain their sanitary conditions.

H. R. 7883. S. 2300. Bill to examine delinquents before District of Columbia Juvenile Court. A favorable report was made on July 28, 1921, by the House Committee on the District of Columbia on the Underhill measure providing for physical and mental examination of all delinquents brought before the Juvenile Court of the District of Columbia. The report makes H. R. 7883 a substitute for H. R. 7212. Both bills are by the same author. The bill provides for the appointment by the judge of the Juvenile Court of a physician who has had special training as a psychiatrist at a salary of $5,000 a year to examine the mental and physical condition of all children brought for trial for juvenile offenses. A psychiatric case worker, a psychologist and a woman physician, who are also to be appointed by the judge of the Juvenile Court, are included in the bill. The original measure, H. R. 7212, presented to the House by Congressman Underhill, contained provisions for the conduct of these examinations by officers of the U. S. Public Health Service. Following the favorable report the bill has been committed to the committee of the whole House on the State of the Union. The bill was introduced in the Senate by Senator Ball, July 22, and referred to the Committee on the District of Columbia.

NEW LEGISLATION

References to Drugs and Medicines in the Fordney Tariff Bill. That portion of the Fordney Tariff Bill which has passed the House and is now pending in the Senate, relating to coal-tar products, intermediates, chemicals and synthetic drugs, is of more than ordinary interest to physicians and other health workers. It is perhaps the first time that legislation of this character has ever been incorporated in a tariff bill.

Without mentioning the technical names of these synthetic drugs and coal-tar products, it may be stated that the bill places an adequate protective duty on more than two hundred of them. Practically all of these drugs were made exclusively in Germany before the war. The war prevented their importation from Germany, and their manufacture was thereupon developed in the United States.

A few of these highly important medicines, which have been manufactured in large quantities in the United States during

and since the war, and which will be protected by the Fordney Tariff Bill may be mentioned.

For instance, phenacetin, a coal-tar product, was before the war valued at $2.00 a pound at the custom house, but sold to retail druggists at $16.00 a pound. Its cost was still more inflated on its sale to the consumer. It is now made by American manufacturers and sold at $1.65 a pound.

Antipyrin sold at $20.00 a pound before the war. The same product, of American manufacture, now sells at $4.50 a pound.

Aspirin on the pre-war basis sold at $10.00 a pound. American aspirin now sells for $1.00 a pound.

Salvarsan cost $3.50 a dose before the war. The same product can now be obtained, manufactured in America, for 36 cents a dose.

(The figures given above are taken from a speech by Representative Caleb R. Layton, who is a physician. He states that he obtained them from the Rockefeller Foundation.)

The Fordney Tariff Bill places a protective tariff duty on at least two hundred drugs of similar character which have their basic foundation in coal-tar products, highly developed through chemical processes.

H. Res. 165. Pellagra in the South. Introduced by Mr. Byrnes of South Carolina on July 28, 1921. Referred to the Committee on Interstate and Foreign Commerce. On July 25 President Harding wrote letters to Surgeon General Cumming of the Public Health Service and to Dr. Livingston Farrand of the American Red Cross concerning pellagra in the South. He stated that reports indicated a distressing condition among the rural population in the South and pointed to a grave epidemic of pellagra. He requested that the Public Health Service and the Red Cross coöperate in an immediate survey of conditions.

The publication of these letters has brought forth indignant denials from members of Congress from most of the Southern states, who quote their state health officers to the effect that conditions are not as serious as believed. Meanwhile a conference was held between the Public Health Service and the Red Cross and plans deferred pending a meeting of the Public Health Service and state health officials. An executive conference between the Public Health Service and the health officers in thirteen Southern states was held in Washington on August 4.

H. R. 8086. Prohibiting Transportation in Interstate Commerce of "Filled Milk." Introduced by Mr. Voight, August 4, 1921. Referred to Committee on Agriculture. Favorably reported August 19, 1921. This bill makes it unlawful for any person to manufacture in any territory of the District of Columbia, or to ship or deliver for shipment in interstate or foreign commerce any filled milk. "Filled milk" is defined as any milk, cream or skimmed milk, whether or not condensed, evaporated, powdered, dried or desiccated, to which has been added, or which has been blended or compounded with, any fat or oil other than milk fat, so that the resulting product is in imitation or semblance of milk, cream or skimmed milk, whether or not condensed, evaporated, concentrated, powerful, dried or desiccated.

This bill was drafted as a result of hearings on H. R. 6215, held on June 13, July 6, 7, 19 and 20, 1921. Among the witnesses were Dr. E. V. McCollum of Johns Hopkins, who testified that the vitamines, which are absolutely necessary to promote growth in the human body, are found most abundantly in butter fat, and that milk is the chief article of food relied upon for the vitamines. He said that milk is the only food for which there is no effective substitute. Other witnesses included officials of the Department of Agriculture, Dairymen's League, dairy and agricultural associations, commercial firms dealing in milk, and representatives of the commercial firms manufacturing the so-called filled milk.

The Committee on Agriculture reported the bill favorably on August 19, 1920. A minority report was filed by Mr. Aswell, who contended that there is nothing deleterious in filled milk, that it is cheaper than milk, and if properly labelled is not unlawful.

H. R. 8378. Prohibiting Manufacture and Sale of Adulterated or Deleterious Butter. Introduced by Mr. Browne, August 23, 1921. Referred to Committee on Agriculture. This measure requires oleomargarine and similar butter substitutes to be labelled as such.

S. J. Res. 104. Army Medical Supplies for Russia. Introduced by Mr. King, August

19, 1921. Referred to Committee on Appropriations. This resolution authorized the President to take any surplus drugs, medicines and medical supplies, of value $5,000,000, from the medical stores of the War Department, for the relief of the sick and suffering people in Russia.

H. R. 8245. Tax Revision Bill levies Tax on Proprietary Medicines. Introduced by Mr. Fordney and passed by the House of Representatives, August 20, 1921. A section of the Tax Revision bill levies a tax of 5 per cent on all medicinal preparations claiming to have a private formula, which are sold by the manufacturers. Vaccines and bacterines are excluded from this tax.

The following bills seem to have only an indirect bearing on public health and so are merely cited:

H. R. 1475. Biological Station for State of Washington. House agreed to a Senate amendment, August 12.

H. R. 8365. Permitting Use in Post Office at Cincinnati, O., of Special Cancelling Stamps Bearing Words, "Public Health Exposition, Cincinnati, O., October 15-22, 1921." Favorably reported, August 23, 1921.

S. 2365. Authorizing Bureau of the Census to Conduct Surveys of Municipal Activities.

REVIEW OF FEDERAL HEALTH LEGISLATION, APRIL 11-AUGUST 24, 1921

Although the Senate was in session from March 4 to 15, 1921, the actual work of the Sixty-seventh Congress began on April 11, 1921, when the President called a special session of Congress. Both branches of Congress have been continuously in session since April 11 until August 24, when a recess was taken, which is to last until September 21.

During the period from April 11 to August 24, 1921, there have been introduced in the Senate 2,457 bills and in the House 8,405 bills. Besides, there have been several hundred resolutions, joint resolutions and concurrent resolutions in both branches. Of this vast number of bills and resolutions, the National Health Council has listed 121 as dealing with public health, or as being so closely allied to it as to deserve mention. Forty-one of the bills have been considered as only indirectly bearing on public health and so have been merely cited. The remaining 80 have been abstracted and their progress carefully followed. Twelve legislative reports have been issued as follows:

Number	*Date* (1921)	*Period Covered*
No. 1 (a)	March 4	66th Congress
No. 2 (b)	April 25	April 11-23
No. 3 (b)	May 6	Fess-Kenyon Bill
No. 4	May 10	April 25-May 9
No. 4A (c)	May 16	Special Bills
No. 5	May 25	May 10-24
No. 6	June 8	May 25-June 7
No. 7	June 23	June 8-22
No. 8	July 8	June 23-July 7
No. 9	July 22	July 8-21
No. 10	Aug. 5	July 22-Aug. 4
No. 11 (d)	Aug. 25	Aug. 5-Aug. 24

(a) Only a few were issued. Supply now exhausted. Back numbers of all the others are available.

(b) The first 50 copies of Statements Nos. 2 and 3 were not so numbered.

(c) Prepared at special request of National Tuberculosis Association and distributed only to Council members.

(d) Review and Index number.

Besides the twelve reports listed above, much special information on individual bills and legislative matters has been sent to members of the Council and a few others at their request. All reports are entirely nonpartisan and impersonal. The legislative statements were originally intended only for Council members, but the demand from others has been so great that arrangements have been made to sell copies *to non-members* at cost price, twenty cents apiece. At present a total of nearly 300 names are on the mailing list. It is hoped that by next December when the regular session of Congress opens, the circulation will be large enough to make it worth while to print the reports instead of mimeographing them.

While space does not permit of a complete review of the bills which have previously been abstracted in the legislative statements, a brief resumé of some of the more important follows. A complete history of each bill is given in the Index, at the end of this section.

Perhaps the measures of greatest general interest to health workers are the Sheppard-Towner Bill for the protection of maternity and infancy, the Fess-Kenyon Bill for a department of welfare, the Sweet Bill creating a Veteran's Bureau, the Willis-Campbell Anti-beer Bill, and the work of the Smoot-

Reavis Joint Reorganization Committee. The Sheppard-Towner Bill passed the Senate on July 22. The House has not yet acted on it but the Committee on Interstate and Foreign Commerce, to which it was referred, held hearings from July 12 to 23. Hearings on the Fess-Kenyon Bill were held by joint committees of both branches of Congress last May. No action has been taken to date. It has been stated that action has been deferred until the Joint Congressional Committee on Reorganization of the Federal Departments shall have completed its report. The plans of this committee call for a department of public welfare. The bill for a Veteran's Bureau became a law on August 9 when it was signed by the President. The so-called Anti-beer bill has passed both houses and been in conference. The House adopted the conference report, but, after a long and tempestuous discussion, the Senate refused to do so, at the last minute. The bill accordingly will have to await action until after the recess.

Other important measures included the General Deficiency Bill, which contained an appropriation for the Interdepartmental Social Hygiene Board, so that it could be continued for another year. A bill for the control of venereal diseases in the District of Columbia is before the House but has not yet been acted upon. Other important bills upon which no action has as yet been taken comprise those for a department of education (including health activities); for fostering physical education; controlling the practice of medicine, chiropractic, osteopathy, optometry, and undertaking in the District of Columbia and elsewhere; and commissions for sanitary engineers in the Public Health Service. Bills relating to the District of Columbia are cited in our reports because they often also relate to the territories. Since Congress legislates for the District, health laws which are adopted may possibly serve as examples for other parts of the country. Besides, government institutions of national scope are sometimes affected by such local legislation. The bill prohibiting vivisection, for instance, would interfere with important experimental work of the Hygienic Laboratory, which is of national interest. Incidentally, no action has been taken on this bill, which is before the Senate.

LEGISLATION—STATE

California.—The Board of Health of San Francisco, at a meeting held on July 21, 1921, passed the following resolution:

"Resolved, that the Board of Health place itself on record as being opposed to the issuance of licenses to anyone peddling medicines of any sort on the public streets, as such practice is a menace to public health; and, further, that the Health Officers be directed to refuse to issue permits for the vending of all medical nostrums and products on the public streets."

✚

New York.—By recent legislative amendments to the Public Health Law, the Division of Sanitary Engineering of the New York State Department of Health was changed to a Division of Sanitation and the work of passing upon plans for sewerage and sewage disposal transferred to the State Engineer. As the result of this change C. A. Holmquist, principal assistant engineer of the Division of Sanitary Engineering, was made director of the new Division of Sanitation. The following former assistant engineers of the Department were appointed to serve in the new division: Earl Devendorf, William Young, Alfred Mullikin and Albert I. Howd.

The new law provides that plans for sewerage and sewage disposal formerly passed upon by the State Department of Health, must now be submitted to and receive the approval of the State Engineer before any permit issued by the State Commissioner of Health for the discharge of sewage or industrial wastes into the waters of this state becomes effective. Under this provision of the law, application for the issuance of a permit should be made to the State Commissioner of Health when plans for sewerage or sewage disposal are submitted to the State Engineer. In general, no permit will be issued by the State Commissioner of Health unless the plans are first approved by the State Engineer.

Except as above indicated, the activities of the Division of Sanitation are substantially the same as before the change and include making investigations and reports on existing water supplies and sewerage and sewage disposal systems; major nuisances; cases of stream pollution; sanitary condi-

tions of camps, fair grounds and other public gathering places; typhoid fever and other water-borne epidemics; sanitary conditions of construction, equipment and operation of milk pasteurization plants; special investigations ordered by the Governor; preparing of permits for the discharge of sewage and industrial wastes; passing on plans for mosquito extermination work and coöperation with the Surgeon General of the U. S. Public Health Service in certifying the quality of water supplies used by common carriers in interstate traffic.

✣

Wisconsin. — Providing for furnishing quarantine signs and placards to local health officers at cost.

Making pneumonia and sleeping sickness reportable diseases.

Extending the public comfort station act to give to governmental units the option to provide comfort station and rest-room facilities in camp sites and other places of public assemblage.

Requiring all public health nurses and public health instructors to register with and be certified for employment by the State Board of Health.

Prohibiting the business of slaughtering on the banks of any stream or in any place where a slaughter-house is not provided.

Legalizing publications and advertisements by the state, city, village or town relating to the prevention and treatment of venereal diseases.

Permitting the health officer, attending physician, clergyman or nurse to enter and leave quarantined premises.

Outlining procedure for legally placarding infected homes.

Amending the barbers' and embalmers' licensing laws.

✣

Wyoming.—The State Legislature has ratified venereal disease control, has made ophthalmia prevention obligatory and has established a full-time State Health Officer. The matter of the location for the State Tuberculosis Sanatorium up for popular vote at the next general election.

STATE HEALTH NOTES—GENERAL

Massachusetts.—The Boston Tuberculosis Association is to hold an institute at the Massachusetts General Hospital, Boston, Mass., on October 26-27, 1921, the purpose of which is to afford general practitioners an opportunity to become more familiar with the different phases of tuberculosis. Dr. James Alexander Miller will speak on "Tuberculosis in the Community," Dr. S. Burt Wolbach, of the Harvard Medical School, on the "Pathology of Tuberculosis," and Dr. Richard C. Cabot, on the "Clinical Signs of Tuberculosis." The value of the sanatorium will be discussed by Dr. Vincent Y. Bowditch and Dr. Edward O. Otis will outline the diseases that are likely to be confused with tuberculosis. "Early Diagnosis" will be the topic of Dr. Lawrason Brown, and Dr. W. C. Woodward, Health Commissioner of Boston, and Dr. Eugene R. Kelley, State Commissioner of Public Health of Massachusetts, will discuss city and state relationships to the control of the disease. At the final session of October 27, Dr. Frederick T. Lord will outline the laboratory aids in diagnosis and Dr. John B. Hawes, 2d, and Dr. George Holmes will present a joint paper on the "Correlation of Clinical Findings and X-ray in Cases of Tuberculosis."

✣

Michigan.—Increased laboratory service for physicians throughout Michigan, thus aiding in the control of disease, will be made possible October 1, when the Bureau of Laboratories of the State Department of Health moves into its quarters on the top floor of the new state office building.

With 149,542 specimens examined during the fiscal year ending July 1, the Bureau of Laboratories averaged 34 specimens to every physician in the state, though the practice of many doctors is of such a nature that it does not require laboratory diagnosis. Last year 84,648 tests were made, an average of 19 to every physician, compared to a total of 38,706 for the preceding year and an average of 9 to each physician.

Throat swab examinations showed the largest increase during 1920-1921, diagnoses for diphtheria numbering 57,565, compared to 23,056 a year ago. Every phase of laboratory procedure, according to the annual

report, reveals like increases with the exception of gonococci smears, which decreased after hospitalization at state expense was discontinued. The Upper Peninsula laboratory, located at Hancock, ran 1,000 specimens a year ago, while this year it completed 8,054.

"Michigan's new laboratories will not be surpassed in equipment and scientific conveniences by any state laboratories in the country," declares Dr. R. M. Olin, commissioner of health. "Besides being fitted to give physicians more adequate service it will now be possible to carry on scientific research which will eventually save thousands of dollars and lives for the people of the state."

✣

New Jersey.—Not only is a great work being done in New Jersey during Child Welfare Week and all other weeks of the year, but a remarkably helpful compilation of notes on the literature, lectures, plays, films, panels, charts, and posters relating to child welfare is printed in the March-April (1921) bulletin of the New Jersey Council of Child Welfare. This feature alone makes the New Jersey publication of national interest.

✣

New York.—A practical example of the health center movement was opened in East Harlem, New York City, early in August. It is located on East 116th St., the geographical center of the district, and occupies three buildings formerly used by the Sydenham Hospital. There are 21 participating agencies, including not only health associations but also general community and family welfare bodies. The agencies housed in the building comprise: the New York City Department of Health's two local bureaus of Child Hygiene and Communicable Diseases; district headquarters of the Association for the Aid of Crippled Children; Association for the Prevention and Relief of Heart Disease; New York Diet Kitchen Association; New York Tuberculosis Association; Occupational Therapy Society of New York; American Social Hygiene Association; Health Service of the New York County Chapter of the American Red Cross; Babies' Dairy; Henry Street Settlement; Maternity Center Association; the State Charities Aid Association; Association for Improving the Condition of the Poor; Charity Organization Society; Catholic Charities; United Hebrew Charities; and Dispensary Development Committee. Other organizations which coöperate with the Health Center, but are not actually housed in it, include Haarlem House, Union Settlement, Harlem Council of Women, St. Timothy Community Center and Settlement. Dr. Royal S. Copeland is honorary chairman and Kenneth Widdemer, executive secretary.

A system of "health bookkeeping" has been adopted by the new health center to make sure that it is adequately covering the needs of the district. Through constant surveys of this area of 100,000 people, the center aims to discover any gaps in its health and welfare program and to introduce new agencies that will fill the needs.

A number of important health moves have already been brought about through the agency of the center. With the coöperation of the City Department of Health and the Red Cross the Schick test has been given to more than 15,000 school children. Six hundred children of pre-school age have also been prepared for school in the fall. Physicians from the City Department of Health have examined them physically, while psychologists from Teachers' College have graded them mentally. A Red Cross nurse has attended to the removal of physical defects.

✣

North Carolina.—Through the joint action of committees representing the Travelers Protective Association, the United Commercial Travelers, and the Hotel Association, in conference with the State Board of Health, considerable revision of the hotel inspection law enacted in 1917 was made, and the recent legislature enacted the proposed legislation. Under its terms the ratings for hotels and restaurants have been placed on a stricter basis. It is now a misdemeanor for any hotel or restaurant coming within the provisions of the law to continue operation provided a score of less than seventy points is made. In administering the law, H. E. Miller, chief of the bureau of engineering and inspection, having direct responsibility for the enforcement of this law, states that in all cases where a score of less than seventy points is made on first inspection an opportunity will be

given for the owners or proprietors to make the necessary changes for the sanitary operation of their places and a re-inspection made. Where the required improvements are not promptly made to comply with the law the places will be closed.

Inspectors of the State Health Department are now engaged in investigating such places in practically all parts of the state. It is expected that within the months of August and September a survey of the entire state may be completed with the force now at work. As fast as places are inspected and scored, the ratings are made public, classified under the three heads of restaurants, hotels, and hotels with rooms only, with the result that the pressure of a healthy public opinion and a mild economic boycott is enlisted against offending hotel and restaurant keepers.

✣

Ohio.—Mansfield and Richland County, Ohio, have been selected by the National Child Health Council as the scene for a unique demonstration of what American communities can do for the most healthful development of their children. The selection of Mansfield and Richland County was announced today after a strong competition among eighty communities, which for several months past have striven to obtain this distinction and advantage. It was felt that conditions in Mansfield and Richland County most nearly complied with the qualifications laid down by the Council for the purpose of securing a typical American community.

This demonstration will cover a period of five years and will deal with children of all ages. It will be directed by Dr. Walter H. Brown, formerly health officer of Bridgeport, Connecticut, who will relinquish his present work with the Commission for the Prevention of Tuberculosis in France the first of September to sail for home to assume his new duties.

The direct objective of the work will be a practical demonstration of what a typical American community can do to increase the health and strength of the next generation. County and state officers, business men, physicians and citizens generally have promised the heartiest coöperation in carrying out this demonstration.

Member organizations of the National Child Health Council are the American Child Hygiene Association, American Red Cross, Child Health Organization of America, National Child Labor Committee, National Organization for Public Health Nursing, and the National Tuberculosis Association. The standing of these organizations insures keen interest on the part of health and social workers throughout the country.

✣

Wisconsin.—The Wisconsin State Board of Health has appointed Dr. Louis Dorpat, Rhinelander, Wis., and Dr. I. F. Thompson, Madison, as directors of the bureau of communicable disease, recently created. Both have been on the Board's staff for several years. The appointment of Dr. V. A. Gudex as deputy state health officer for the northwestern district, with headquarters at Eau Claire, Wis., was made permanent. Miss Ada Eldridge, formerly of Fond du Lac, Wis., and recently in nurses' educational work in New York, was appointed director of nursing education under the new law governing the work of registered nurses. A state committee on nursing education was chosen to consist of Dr. Oscar Lotz, Milwaukee; Miss Agnes Reid, Madison; Miss Amalia Olson, Eau Claire; Miss Shirley Titus, Milwaukee; Dr. Joseph Lettenberger, Milwaukee; Mrs. Adelaide Northam, Wauwatosa; H. K. Thurston, Madison; and Mrs. Mary P. Morgan and Dr. C. A. Harper, representing the State Board of Health.

Dr. F. F. Bowman, deputy state health officer for the first district, conducted county health conferences in August at Richland Center and Viroqua, Wis., which were largely attended and gave a pronounced stimulus to organized health work in the typically rural counties of Richland and Vernon.

The Wisconsin Methodist Hospital, recently established in Madison by the Methodist Episcopal churches of the West Wisconsin Conference, was formally dedicated on August 19, with an address by Bishop Charles P. Mitchell of St. Paul, Minn. This is the first unit of a prospective hospital of 600 beds. Work on the superstructure of the Wisconsin General Hospital, established in connection with the medical school of the University of Wisconsin, will start this fall.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Chief Causes of the Accumulation of Gas in a Mine.—(1) An insufficient volume of air, due to an imperfect fan. (2) Leakage of air before it reaches the working face due to poorly constructed stoppings. (3) Shortened circulation of air currents due to neglected doors, the breaking of a brattice, or the driving of openings too far in advance of the air. (4) Electrically driven fans failing to function.—Joseph J. Walsh, Mine Inspector, Wilkes-Barre, Pa., *Proceedings, Ninth Annual Safety Congress,* pp. 833-840, 1920.

✣

Health Hazards in the Rubber Industry.—The author discusses the problems of a safety engineer, the general causes of occupational diseases, and the modes by which industrial poisons enter the human body. In Massachusetts during 1917 there were 73,920 days lost by the employees of industry on account of occupational diseases. The occupational diseases peculiar to the different processes in the rubber industry are next taken up in regular order with emphasis upon lead poisoning, antimony poisoning, anilin and benzol poisoning, and risk due to the use of the common accelerator (urotropin). The writer suggests the formation of a Committee on Health Hazards in the Rubber Section of the National Safety Council.—Charles F. Horan, Hood Rubber Company, Watertown, Mass., *Proceedings, Ninth Annual Safety Congress,* pp. 1118-1128, 1920.

✣

Devices for Detecting Carbon Monoxide Gas and for Protection Against It.—A mechanical CO detector and a simple type of CO gas mask were perfected by members (Frazer, Lamb, Hoover and others) of the Chemical Warfare Service which are adaptable to industrial use. The detector comprises a small metal barrel with a rubber bulb on one end and a means for quickly inserting a glass tube filled with a special chemical in a space on top of the barrel. The chemical used changes color from a light to a dark green when air contaminated by CO is forced through the tube by the rubber bulb, the amount of color changes depending upon the percentage of CO in the air so that an accompanying calibrated color scale enables one to estimate, in a few seconds, amounts varying from 0.05 to 1.0% CO. The instrument is entirely mechanical and any one can operate it. It is far more sensitive than the canary bird and can be carried through gaseous zones. It has been thoroughly tried out around blast furnaces, steel mills and coal mines with most satisfactory results. The instrument readily shows the presence of CO in cigar, pipe or cigarette smoke (and also the effects of "inhaling") while smoking in which case the CO seems to be absorbed into the system, for it can barely be detected in the exhaled breath when the smoke remnant is blown through the detector.—*(E. R. H.)*

The protective gas mask weighing 3 to 4 pounds has a canister containing a combination of metallic oxides which catalytically convert CO into CO_2 at ordinary temperatures. While it cannot be used where there is a deficit of O (as occasionally occurs in mines), being catalytic in action, it is not subject to exhaustion by use and is invaluable about furnaces, mills, mine fires, etc. It is regarded as one of the great chemical achievements of the war.—Guy H. Burrell, Mine Safety Appliance Company, Pittsburgh, Pa., *Proceedings, Ninth Annual Safety Congress,* pp. 751-753, 1920.

✣

Gas and Fume Removal in the Chemical Industry.—Those who have to do with the hazard of gas fumes in chemical industries should read this paper in full. Stress is laid upon the question of exhaust ventilation and types of fans used, and the use of respirators.—Dr. Martin Szamatolski, Consulting Chemist, New Jersey Dept. of Labor, *Proceedings, Ninth Annual Safety Congress,* pp. 526-536, 1920.

Industrial Cataract.—The May issue of the British *Journal of Ophthalmology* contains important papers on the causation of certain forms of cataract. Emphasis is laid on the heat factor as of primary importance in such trades as glass making, and work requiring the gazing into fire or molten or heated metals. The evidence appears to be irrefutable that continuous exposure to excessive heat over a long period is a sufficient cause for cataract. Prevention is not easy although triplex goggles would keep back the heat rays, but some means of controlling the collection of moisture and dust on the glass must be devised.—*Lancet (London)* Editorial, June 25, 1921, p. 1372.

✣

Silicosis as the Prime Factor in Industrial Tuberculosis.—From the work of Drs. Cramer and Gye on the relation of silica in earth contents to the development of tetanus germs in the tissues, a similar influence of siliceous material on the growth of other organisms, principally the tubercle bacillus, has been ascertained. When the tubercle bacillus is injected into the tissues of the mouse, which is inherently quite immune, a spreading infection by the germ takes place. This seems to throw new light on the problem of industrial tuberculosis which is a scourge in so many indispensable trades in which sandy materials are used.—H. H. Dale, *Lancet (London)*, July 9, 1921, p. 112.

✣

Treatment of Acid and Alkali Burns.—In first degree burns, mopping of burnt area with dry gauze followed by cleansing ointment such as boric acid ointment or one made of bicarbonate of soda and petrolatum, or oxide of zinc, will suffice. In second degree burns the wound should be cleansed of all loose rolled-up epidermis, mopped with a boric acid solution, and ointment applied loosely on gauze. Small blisters are let alone but large blisters where there is tension are sterilized with alcoholic solution of iodine and opened aseptically. Sterilized ointment must be used in this case. Dressings are renewed only as often as discharges demand. The third degree burns are cleansed of all loose tissue and treated as those of the second degree. After three or four days the ointment dressing is replaced by a wet gauge dressing of normal salt solution which must be kept wet. Careful removal of slough portions must be seen to. Shock is combated with morphine as well as stimulating methods. Acid burns of the eyes are douched with a watery solution of bicarbonate of soda and alkali burns with 1 or 2% of acetic acid. Boric acid ointment is put under the eyelid and the case sent to an eye specialist.—A. K. Smith, du Pont de Nemours & Co., Wilmington, Del., *Proceedings, Ninth Annual Safety Congress*, pp. 555-562, 1920.

✣

Physical Examination of Employees.—Those interested in a very comprehensive and detailed paper upon this subject should read the article by Dr. A. W. Colcord, Medical Director, Carnegie Steel Company, Clairton, Pa., in the Proceedings of the National Safety Council (Ninth Annual Safety Congress), 1920, pp. 134-146. The Proceedings are obtainable from the National Safety Council, 168 N. Michigan Avenue, Chicago. What appears of equal merit along similar lines are papers by Dr. Otto P. Geier, Cincinnati Milling Machine Company, Cincinnati, Ohio, on the "Future of Industrial Medicine in a Labor Policy" (pp. 107-113), and "Fundamental Requirements for Successful Medical Work in Industry," by Dr. W. A. Sawyer, Medical Director, Eastman Kodak Company, Rochester, N. Y., (pp. 146-152). These papers are accompanied by the report of discussions.

✣

Shop Standards and Fatigue.—The author quotes, among others, Lee's definition for fatigue as "a diminished capacity for work which is the result of previous work." He emphasizes the accumulation of waste products, the result of work, as the chief factor. The symptoms of fatigue are quoted briefly. There is a rather complete statement of the causes of fatigue. In addition to the usual laboratory tests for fatigue, which are briefly described, the author takes up the factory tests such as output, spoiled work, accidents, cinematograph records, mental and physical examinations, muscle strength tests, and rhythm. Industrial causes of fatigue, both direct and indirect, and the fundamentals of a plant program to reduce same, are delineated. Under the latter headings there should be (1) a physical examination, (2) an examination of the job, and (3) an examination of the plant.—Bernard Newman, *Proceedings*, Ninth Annual Safety Congress, pp. 405-417, 1920.

Ohio Compensates Occupational Diseases.—The last General Assembly of Ohio passed an Act compensating 15 occupational diseases occurring in any industrial process (specified for each disease), as follows: (1) Anthrax, (2) Glanders, (3) Lead poisoning, (4) Mercury poisoning, (5) Phosphorus poisoning, (6) Arsenic poisoning, (7) Benzol or nitro- and amido-derivatives thereof (anilin and others), (8) Gasoline and volatile petroleum products, (9) Carbon bisulphide, (10) Wood alcohol, (11) "Infection or inflammation of the skin on contact surfaces due to oils, cutting compounds or lubricants, dust, liquids, fumes, gases or vapors," (12) Cancer of the skin, (13) Compressed air illness, (14) Carbon dioxide poisoning, (15) Brass or zinc poisoning. The Law provides that the Industrial Commission of Ohio shall investigate and ascertain the hazards of the diseases specified, shall classify them and fix rates of compensation and that after July 1, 1924, based upon the total pay roll in each of such classes, an adequate fund for the payment of such compensation shall be established. "The commission shall collect and collate information with respect to such diseases, and shall obtain statistical, actuarial and such other information as may be necessary to effect the purpose of this section, including the study of the experience of other states and countries having similar laws compensating the victims of occupational diseases. The commission shall employ and detail to such work such physicians; examiners, clerks and assistants as shall be necessary."

In order to draw compensation under this Act, employees must have been resident in the State for 90 days and must have been employed by an employer coming under the Ohio Workmen's Compensation Law. The Act provides that in controversial cases a medical advisor appointed by the Commission must examine the claimant for the purpose of determining the existence of such disease, and the approximate time, place and cause of its inception; or, in case of death, no award shall be paid until a finding is had by such a medical advisory, who shall have had opportunity to examine the body of the deceased person. From time to time the Commission may publish general information, as the result of the working of the Act, for distribution to employers and employees. Every physician is required to report occupational diseases to the Industrial Commission. However, the regular occupational disease reporting law which was not repealed also requires that all physicians report occupational diseases to the State Dept. of Health. It is probable that a combined blank will be used to save duplication. The Industrial Commission has recently established a fund for meeting the compensation costs, equal to 2.5 mills on all payrolls. It is estimated that this will yield about $250,000 the first year. It is commonly believed that this sum will be more than adequate unless a very liberal construction is put upon the meaning of the law as drawn and passed.—*(E. R. H.)*

✣

Physiologically Harmful Gases.—The following table is compiled from Henderson & Paul's paper on "Oxygen Mine Rescue Apparatus and Physiological Effects on Users," pp. 78-79.

(a) Non-irritating to lung, but when absorbed into blood become protoplasmic poisons.
  (1) Arsenurated hydrogen.
  (2) Hydrocyanic acids.

(b) Gases irritating to bronchial tubes thereby causing injury or death.
  (1) Sulphur dioxide.
  (2) Bromine.
  (3) Chlorine.
  (4) Higher oxides of nitrogen (as when dynamite burns instead of exploding).

(c) Gases physiologically inert, but which induce asphyxia merely because of insufficient presence of oxygen.
  (1) Carbon dioxide
  (2) Nitrogen ("Black Damp").
  (3) Hydrogen.
  (4) Methane (Fire Damp.)

(d) Gases physiologically inert except in respect to their affinity for hemoglobin.
  (1) Carbon monoxide (affinity for hemoglobin 250 times as strong as oxygen, causes more deaths than all other gases combined).

—*Tech. Paper No. 82*, U. S. Bureau of Mines.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

Wassermann Test with Secretions, Transudates and Exudates in Syphilis.—The Wassermann test was performed with milk, saliva, seminal fluid, exudates and transudates from syphilitics. An antisheep hemolytic system, water bath incubation and a cholesterolized antigen were used in performing the test. Wassermann tests with the heated serum of each patient were conducted with the same antigen and with the same technic. All yielded a positive reaction. All specimens were first titrated for anticomplementary activity. Milk and saliva were found to be highly anticomplementary. Nineteen specimens of milk were examined; positive Wassermann tests were obtained in three. Twenty specimens of saliva were examined; a weakly positive Wassermann test was obtained in one. Thirty specimens of seminal fluid were examined. A moderately positive Wassermann test was obtained in one. Ten specimens of aqueous fluid from the anterior chamber of the eye were examined. All yielded a negative test excepting two in which the test was doubtful. Eleven specimens of exudates and transudates were examined. All yielded a positive Wassermann test. The degree of positive Wassermann reaction closely paralleled the reaction obtained with blood from the same patient. Evidence is presented which supports the belief that the complement-fixing antibody in spinal fluid is in all probability dual in origin, neutral as well as hematogenous. The presence of the complement-fixing antibodies in exudates and transudates from syphilitics is regarded as derived from the plasma of the blood. The Wassermann test was performed with the surface fluid from a number of chancres, and with the saline extract of syphilitic nodules removed from the testicles of syphilized rabbits. All the tests performed with chancre fluids yielded almost uniformly ++++ reactions. The reaction performed with saline extract of syphilitic testicular nodules yielded positive results. The control reactions in both studies were negative. These positive reactions support the belief that at the site of syphilitic lesions there may occur a local formation of complement-fixing antibodies. The reaction in these circumstances is styled the "local" Wassermann test. The practical value of the "local" Wassermann test is pointed out as a possible aid in differentiating syphilitic from nonsyphilitic lesions, particularly when applied to chancre fluid as a means to the early diagnosis of syphilis.—Joseph V. Klauder and John A. Kolmer, *Jour. A. M. A.*, 76, 1635 (1921).

✣

Method for the Intravenous Injection of Guinea-Pigs.—Up to the present time two well-known methods have been employed for the intravenous injection of substances into guinea-pigs, namely, the jugular vein and the ear vein methods. By certain investigators the first method is considered objectionable by reason of the fact that when the jugular vein is used it is exceedingly difficult to control the head of the animal without interfering with the operator's movements when making the injections. The marginal vein of the ear which is advocated by Rous can be employed only in selected animals and therefore is not especially adapted for routine use. A method for routine work which seems to have a distinct advantage over the preceding methods has been elaborated recently. This makes use of the comparatively large superficial vein lying on the dorsal and inner aspect of the hind leg of the animal. This vein nearly always runs diagonally across the leg from the dorsal aspect below to the inner aspect above. To use the above vessel for intravenous administration an operating board has been devised which permits the operator to manipulate the hind legs of the animal freely and at the same time does not prevent the legs from being securely tied. —George B. Roth, *Jour. Bact.*, 6, 249 (1921).

✣

Growth of Bacillus Influenzæ in Hemoglobin-free Media.—It is shown that *Bacillus influenzæ* will grow profusely in hemo-

globin-free media consisting only of plain broth and emulsions or extracts of mucoid bacilli and *Bacillus proteus*. The emulsions and the extracts can be boiled and filtered through Berkefeld filters without losing their growth-inducing property. The growth-stimulating effect of the bacterial extracts is possibly due to substance belonging to the class of the so-called vitamines.—Theodor Thjötta, *Jour. Exp. Med.*, 33, 763 (1921).

✣

Quantitative Serum Reaction for Diagnosis of Syphilis.—The authors describe a new complement fixation test for syphilis which they claim is far more dependable than the Wassermann test. They have given it the name "sigma" reaction. Use is made of two standardized saline suspensions of different concentrations made from a mixture of alcoholic heart extract and cholesterin and the readings are expressed in terms of standard flocculation units. The "sigma" reaction gave positive results in 18% more cases than the Wassermann reaction in a series of tests. It only failed in five cases to reveal the presence of syphilis, while the Wassermann reaction failed in 59 cases. In the case of cerebrospinal fluids the Wassermann reaction is as delicate as the "sigma" reaction. This, no doubt, because more cerebrospinal fluid than serum is employed in the Wassermann reaction. In the case of serum, however, the Wassermann reaction has proved less sensitive. A treated case of syphilis will sometimes continue to give a positive reaction after the Wassermann reaction has become negative.—G. Dreyer and H. K. Ward, *Lancet (London) No.* 5097, p. 956 (1921); *Jour. A. M. A.*, 76, 1709 (1921).

✣

Blood Grouping in Malignant Disease.—The blood group of 50 cases of malignant disease has been determined by authors and the incidence of each compared with that in 125 cases of other diseases and 50 normal persons. It is found that, while persons belonging to all four groups are liable to malignant disease, those in Groups I and III appear to be peculiarly susceptible, and the clinical type of disease is, generally speaking, more malignant.—W. Alexander, *Brit. Jour. Exp. Pat.*, 2, 66 (1921); *Jour. A. M. A.*, 76, 1613 (1921).

Influence of the H-ion Concentration on the Growth of B. Typhosus in Mediums Containing Bile or Bile Salts.—Bile of oxen, hepatic duct bile of rabbits, bacto "desiccated ox bile," sodium glycocholate and taurocholate in 1% concentration in a 0.01% "Difco" peptone-phosphate solution at a pH 7.0 are growth-enhancing for *B. typhosus*, while greater amounts, such as 3 to 30%, greatly inhibit proliferation. At pH 8.4 the same bile specimens or their salts acquire either inhibitive, bacteriostatic or germicidal properties. The more concentrated the mediums are in biliary salts, the greater is their effect on the viable cells. Even small amounts of bile salts, such as 0.5%, destroy the inoculated bacteria in 24 hours. At pH 8.4 glycocholates are more antiseptic than taurocholates, while the same salts in the same concentration may be stimulative at a pH 7.0.—P. Schoenholz and K. F. Meyer, *Jour. Inf. Dis.*, 28, 588 (1921).

✣

Autovaccine from Sputum.—The author treats sputum in a Petri dish with a thin layer of 4% solution of glycerin. As the sputum dissolves, the tubercle bacilli proliferate, and by the sixth day, he says, they can be used, after centrifuging, for an autogenous vaccine without further cultivation.—R. Korbsch, *Zeitsch. Tuberk.*, 33, 332 (1921); *Jour. A. M. A.*, 76, 1544 (1921).

✣

An Improved Anaërobe Jar.—A description is given of a modification of the anaërobe jars of McIntosh and Fildes and of Smillie in which the oxygen is consumed by combustion with hydrogen under the catalytic action of platinized or palladinized asbestos. The special advantages of the apparatus described reside in its greater safety and in the fact that the catalyzer is heated electrically after the jar is closed and may be reheated at any time during incubation without opening the jar.—J. Howard Brown, *Jour. Exp. Med.*, 33, 677 (1921).

✣

The Renal Function Test in Urines Containing Bile and Blood.—As the phenolsulphonephthalein test for estimating renal function is based on a colorimetric determination, it follows that foreign coloring matter in the urine introduces an error, and that any considerable amount of coloring

matter vitiates the test. Bile and blood are the two common sources of color in the urine that render the method inaccurate. The method described removes both bile and blood. It is performed as follows: Phenolsulphonephthalein solution (1 c.c.) is injected into the deltoid muscle in the usual manner, and the urine collected after the usual interval of two hours and ten minutes. This specimen of urine is diluted up to 500 c.c. with tap water. To 20 c.c. of this diluted urine are added 20 c.c. of a saturated alcoholic solution of zinc acetate, which precipitates out bilirubin and hemoglobin. Red cells are carried down with the precipitate. Filtration yields a clear solution, now free of bile pigments and hemoglobin. Twenty cubic centimeters of this clear filtrate is made alkaline with 5 c.c. of saturated sodium hydroxid solution to bring out the full color of the dye, and made up to 40 c.c. with tap water. This solution is clear and is read directly against a known standard solution of phenolsulphonephthalein. In order to correct for dilution, the percentage reading is multiplied by 2. In each case the loss of phenolsulphonephthalein, when the final filtrate was compared with a standard in the Duboscq colorimeter, was so small as to be negligible. In those preparations containing bile, all traces of bilirubin had been removed, as demonstrated by the iodin test for bile. In those preparations containing blood, all traces of hemoglobin or hemoglobin derivatives had been removed, as shown by the absence in the final filtrate of characteristic spectroscopic absorption bands. All the resulting filtrates were clear. In every case the final filtrate could be read directly and satisfactorily against standard solutions of phenolsulphonephthalein.—C. Sidney Burwell and Chester M. Jones, *Jour. A. M. A.*, 77, 462 (1921).

✣

Method for Cultivation of Blastocystis.—The culture medium used is made of human blood serum and 0.5 per cent sodium chlorid solution. The salt solution is sterilized in the autoclave and the serum added after inactivation at 55 C. for one-half hour. The pooled serum of several individuals has been used instead of that from a single individual, although no work has been done to show whether or not one serum may be inhibitory while another is favorable to the growth of blastocystis. This medium is faintly alkaline to litmus. The medium is distributed in narrow test tubes in quantity sufficient to give a column of fluid at least 100 mm. high. No growth takes place at the surface of the tube, and the parasites multiply best at the lower portion of the tube, evidently needing little free oxygen for their growth.—H. P. Barret, *Ann. Trop. Med. Parasit.* (Liverpool), 15, 113 (1921); *Jour. A. M. A.*, 77, 647 (1921).

✣

The Effect of Cholesteremia on the Results of the Wassermann Test.—The feeding of 1.25 grams of cholesterin per kilo of body weight to rabbits results in an enormous accumulation of cholesterin in the blood, an accumulation that persists, in some instances, for several days after the feeding is stopped. The hypercholesteremia produced by feeding rabbits large amounts of cholesterin does not cause the blood serum of these animals to give a positive Wassermann reaction. There is no relationship between the cholesterin content of the blood serum of rabbits and the results of the Wassermann test, all of the animals experimented upon giving a consistently negative reaction despite the enormous increase in the cholesterin content of their blood serum resulting from the feeding of this substance.—Charles F. Craig and William C. Williams, *Am. Jour .Syph.*, 5, 392 (1921).

✣

Viability of Spirocheta Pallida in Excised Tissue and Autopsy Material.—Spirochetes kept in serum or moist tissue, either human or animal, may retain slight motility as long as three months or more. Reliable dark-field examinations can be made on tissues or fluids collected several hours previously, provided they are kept moist and cool. Complete drying is probably fatal to the Spirocheta pallida, since each of the rabbits inoculated with dried spirocheta on scalpels failed to develop syphilitic lesions. Spirocheta pallida may, and in this case did, remain virulent in autopsy material for twenty-six hours or longer.—George R. Lacy and Samuel R. Haythorn, *Am. Jour. Syph.*, 5, 401 (1921).

Factors Relating to the Serum and Serum Control Tube in the Wassermann Test.—The antibody content of serum from mixed venous and arterial blood collected by pricking a finger, and of venous blood collected by venipuncture, is identical. Blood sera collected from a finger or by cupping are more likely to become anticomplementary than sera collected by aseptic technic and venipuncture, due to greater chances for bacterial contamination. Syphilitic sera collected at once by defibrinating and centrifuging blood contain as much complement-fixing antibody as sera allowed to separate for one to forty-eight hours. When preserved human sera yield a stronger complement-fixation reaction than the same sera while fresh, the difference is due to the presence of anticomplementary substances (antilysins) or the deterioration of natural hemolysins. The anticomplementary activity of a serum is greatly modified by whether or not it is used unheated or heated and by the presence or absence of natural hemolysins. The presence of anticomplementary substances (antilysins) influences the degree of positiveness of a reaction and explains in part the differences observed with portions of the same blood in different laboratories; technic should, however, discover the presence of these antilysins and render all laboratory reports uniform insofar as positive or negative reactions are concerned. The serum control tube should not carry more serum or spinal fluid than the main tube or tubes if an antisheep or antiox hemolytic system is being employed in order to avoid the influence of natural hemolysins; with an antihuman or antichicken hemolytic system the use of a slight excess of serum and spinal fluid in the control tube serves the purpose of caution, but is not absolutely essential. The guiding principles for the collection of blood and spinal fluid for the Wassermann and other complement-fixation tests are avoiding or minimizing the opportunities for development of anticomplementary substances (antilysins) and the occurrence of falsely negative reactions; these principles are presented and discussed.—John A. Kolmer, *Am. Jour. Syph.*, 5, 439 (1921).

✣

Factors Influencing the Amount of Hemolysin Employed in Complement-Fixation Tests.—It is advisable to titrate the hemolysin each time complement-fixation tests are conducted in order to make proper adjustment for the presence of natural hemolysins which may be present in the complement serum. In titrating the hemolysin the amount of complement employed should be neither too large nor too small, but represent an average unit based upon experience. The same amount of hemolysin should be used in the complement titration and complement-fixation tests; under these conditions the most sensitive reactions occur when one or five units of hemolysin are used. The use of these amounts of hemolysin may, however, result in too close adjustment of the hemolytic system yielding unsatisfactory controls. Best results were observed with antisheep, antiox, and antihuman hemolytic systems when the complement was titrated and the complement-fixation tests conducted, with two units of hemolysin.—John A. Kolmer, Elizabeth Yagle, Anna M. Rule, *Am. Jour. Syph.*, 5, 451 (1921).

✣

Complement-Fixation Tests With Two Antigens.—Two antigens whose reliability has been established form a valuable check upon one another for routine public health laboratory work. Cholesterinized antigen gave a higher percentage of positive and doubtful reactions. This bears out the usual observation that cholesterinized antigens are more sensitive than crude alcoholic antigens. Sera are occasionally found which are undoubtedly positive but which due to some peculiarity of the serum, do not react with one of the antigens used. Used alone the cholesterinized antigen must be considered a rather unreliable antigen likely to give false positives. Used in connection with the crude alcoholic antigen it is of great value in detecting slight reactions in treated cases where further treatment is indicated or where at least further observations to determine and increase in antibody content in the serum is desirable. It is also of value in picking up slight reactions early in the course of the disease which will later undoubtedly become positive with a less sensitive antigen.—Mae E. Larkin, *Am. Jour. Syph.*, 5, 476 (1921).

The Ionization Constants of Glycerophosphoric Acid and Their Use As Buffers, Especially in Culture Mediums.—Disodium glycerophosphate is a solvent for calcium and magnesium and perhaps other salts, and when used in proper concentration prevents much of the objectionable precipitation of phosphates on the alkaline side of neutrality. This property suggests its employment in culture mediums, in the washing of agar, in the precipitation of casein, and for the study of the effect of the calcium and magnesium ions on the growth of various organisms. The value of the glycerophosphates as food substances is under consideration. The fact that their ionization constants are substantially the same as those of the nonglycerinated phosphates makes possible this substitution for these salts as buffers. They should be decidedly superior to the latter as buffers, owing to their stability in the lower alkaline ranges where, for example, an initial Ph of 8 has been maintained in broth after autoclaving.—Ralph R. Mellon, S. F. Acree, Pauline M. Avery and E. A. Slagle, *Jour. Inf. Dis.*, 29, 1 (1921).

✣

The Change in the Hydrogen-Ion Concentration in Soft and Pyrex Glass Tubes.—Heating unbuffered solutions in soft glass tubes greatly affects the hydrogen-ion concentration. Heating mixtures of Na_2HPO_4 and KH_2PO_4 in hard glass tubes does not affect the hydrogen-ion concentration during the heating, while prolonged heating in soft glass tubes dissolves out alkali in excess of the amount which can be controlled by the buffer salts. Heating an alkaline solution of this mixture in soft glass causes a greater lowering in the hydrogen-ion concentration than acid solutions. A neutral solution does not change appreciably during heating even in soft glass tubes. Heating the juices pressed from canned corn, peas, string beans, spinach, beets, sweet potatoes and pumpkin in soft glass tubes affects the hydrogen-ion concentration less than in hard glass tubes. A longer time is necessary to destroy the same suspension of spores in corn juice if heated in soft glass tubes than in hard glass tubes. No general statement can be made regarding the relative merits of hard and soft glass tubes in the determination of the thermal death point. The type of glass to be used for this purpose must be determined for each solution. In thermal death point determinations the hydrogen-ion concentration of the solution must be known during the entire period of heating.—J. R. Esty and P. H. Cathcart, *Jour. Inf. Dis.*, 29, 29 (1921).

✣

Changes in the Alkali Reserve, Sugar Concentration and Leukocytes of the Blood in Experimental Infections.—Depression of the alkali reserve of the blood in rabbits by intravenous injections of pathogenic bacteria is accompanied by a transient hyperglycemia, the degree of hyperglycemia apparently depending on the extent of alkali reserve diminution. Subcutaneous administration of carbonate or bicarbonate solutions does not prevent the acidosis produced by these injections of bacteria. Injections of acid potassium phosphate solutions depress the alkali reserve of the blood, this lowered alkalinity being associated with a hyperglycemia and by changes in the number of leukocytes similar to those following injections of bacteria. The concentration of sugar in the blood seems to be independent of the changes in the number of leukocytes.—Edwin F. Hirsch, *Jour. Inf. Dis.*, 29, 40 (1921).

✣

Bacteriologic Studies of the Upper Respiratory Passages.—Hemolytic streptococci are common in the nasopharynx and nasopharyngeal vegetations. From nasopharyngeal swabs and the surface of the adenoids hemolytic streptococci were recovered in 55%; from the depths between the folds and of the crypt-like depressions of the adenoids of the same persons, in 61% in larger numbers. The excised tonsils of the same patients revealed hemolytic streptococci in still larger numbers in 95%. These streptococci agree in their morphology, cultural characteristics, fermentation reactions and pathogenicity, and are practically identical with hemolytic streptococci from various human sources. The adenoids, like the tonsils, are to be considered as common foci harboring hemolytic streptococci. To ascertain more accurately the incidence of pneumococci in the throat and nasopharynx cultures were made from the extirpated adenoids and tonsils. In a series of 103 adenoids, pneumococcus occurred in 65%,

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2% of which were type 2, 13% type 3 and 85% type 4. In the nasopharyngeal swabs of 21 persons the pneumococcus was recovered in 71.4%; from the tonsils of the same persons in 66.6%, and the adenoids in 71.4%. It was observed that in the depths of the folds and the crypt-like depressions of the nasopharyngeal vegetations and from the tonsillar crypts the pneumococci were decidedly more numerous than in the swabs. In four instances the pneumococci occurred practically in pure culture from the adenoids. Streptococcus viridans was found in 89% of the adenoids and 81% of the tonsils. Streptococcus mucosus was encountered in 3% of the adenoids, and indifferent streptococci in 12%. The Mathers coccus was noted in 17% of the adenoids, once in pure culture. The adenoids and tonsils are foci in which pneumococci and nonhemolytic streptococci commonly flourish. Gram-negative, pleomorphic, hemoglobinophilic bacilli, showing a preference for heated blood agar and revealing the characteristic property of symbiosis, were isolated and identified in 40.9% of extirpated adenoids and in 53.9% of the excised tonsils from 115 persons. In the nasopharynx they were present in 40% of 25 persons and in fewer numbers. The tonsils and adenoids therefore are foci in which influenza bacilli (Pfeiffer) commonly flourish.—I. Pilot and S. J. Pearlman, *Jour. Inf. Dis.*, 29, 47 (1921).

✣

Bacteriologic Studies of the Upper Respiratory Passages.—Pneumococci, hemolytic streptococci and B. influenzae were often found in the nasopharynx of normal children. The incidence and numbers of hemolytic streptococci and influenza bacilli in the nasopharynx is decidedly less in the children whose adenoids and tonsils had been removed. In case of the pneumococcus the numbers are less in the same children than in those whose tonsils were present. The removal of tonsils and adenoids reduces the number of certain bacteria in the oropharynx and naso-pharynx, but does not cause their disappearance.—J. Meyer, I. Pilot, and S. J. Pearman, *Jour. Inf. Dis.*, 29, 59 (1921).

✣

The Diphtheria Bacilli and Diphtheroids of the Adenoids and Tonsils.—Cultures made of the excised adenoids of 100 children revealed B. diphtheriae in 12. The crypts of the extirpated faucial tonsils of the same persons harbored the bacilli in 12. When present in the tonsils the bacilli also occurred in the adenoids of the same person. In the tonsillar crypts the diphtheria bacilli were usually more numerous than in the adenoids. Two of the 12 strains were virulent; one showed attenuated virulence; three were pathogenic in large doses of the first culture, while subsequent cultures were without virulence; the remainder were totally avirulent. Diphtheroids occurred in 30 of the adenoids and in 17 of the tonsils; when present in both they were decidedly more numerous in the nasopharyngeal vegetations than in the tonsillar crypts.—I. Pilot, *Jour. Inf. Dis.*, 29, 62 (1921).

✣

A Microscopic Method for Anaerobic Cultivation.—By the use of this anaerobic moist chamber, the growth and development of anaerobic micro-organisms may be studied by direct microscopic observation throughout the uninterrupted history of the culture. This microscopic method of anaerobic cultivation possesses the general advantages of oxygen absorption anaerobic methods. In addition, it possesses the following advantages over the older miscroscopic oxygen absorption anaerobic methods: simplicity of apparatus, ease of manipulation, good illumination of object, high degree of oxygen absorption, rapid decrease in oxygen concentration and minimum evaporation and change in concentration of the culture medium.—A. Itano and J. Neill, *Jour. Inf. Dis.*, 29, 78 (1921).

✣

The Production of Carbon-Dioxide by the Typhoid Bacillus and the Russell Tube.—Carbon dioxide is produced by the typhoid bacillus in significant amounts both from sugars and from proteins. The appearance of the Russell double sugar tube during the growth of the typhoid bacillus is not due to direct oxygen requirements. It is due (a) to the retention of carbon dioxide in the butt of the tube and its escape from the slant and (b) to alkaline reversion of other acids.—H. J. Nichols, *Jour. Inf. Dis.*, 29, 82 (1921).

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Spread of Streptococcus of Scarlatina.—Hemolytic streptococci may be isolated from the floor and walls of rooms occupied by patients with scarlet fever and diphtheria, and from the fingernails, face masks and shoes of the attending nurses, and from the eating utensils used by patients harboring hemolytic streptococci. Only 5 to 20 strains thus isolated were opsonified and agglutinated by the serum of a sheep immunized with a hemolytic streptococcus from scarlet fever and hence to be considered as specific for scarlet fever. Four of these strains were isolated from the eating utensils of scarlet fever patients and one from the face mask of the nurse in attendance. These results indicate the value of face masks and the necessity of disinfection of eating utensils used by patients with infectious diseases. It would also appear that persons associated with scarlet fever patients may develop tonsillitis without an exanthem and harbor hemolytic streptococci which belong to the same biologic group as those isolated from typical cases of scarlet fever. Agglutination of hemolytic streptococci from suspected cases of scarlet fever, by immune sheep serum specific for streptococci from scarlet fever, has proved helpful in diagnosis. These results suggest, further, that while patients with scarlet fever generally rid themselves of hemolytic streptococci specific for scarlet fever in from three to four weeks, patients with discharges may retain them much longer, and that the streptococcus specific for scarlet fever disappears at the time when the patient becomes noninfectious, according to clinical experience.—R. Tunnicliff, *Jour. Inf. Dis.*, 29, 91 (1921).

✣

Recovery From Rabies.—Spontaneous recovery from rabies naturally acquired, while rare, does occur. The saliva of an animal which recovers from rabies may have been extremely virulent during the course of the disease. As early at 38 days after recovery from street rabies in a dog, the infectivity of the brain may disappear and Negri bodies be absent. Therapeutic measures to control the symptoms in developed rabies in man should not be so heroic as to themselves endanger the life of the patient, for there is a possibility of recovery.—J. McI. Phillips, F. Berry and J. H. Snook, *Jour. Inf. Dis.*, 29, 97 (1921).

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An Immunologic Study of Bacillus Influenzae.—Twelve strains of hemoglobinophilic bacilli obtained from 11 patients was influenza during the recurrent epidemic of 1920 have been studied immunologically. Cross-agglutination tests and absorption experiments indicate that of the 12 strains 4, or 33⅓%, were identical in their immunologic reactions. No evidence of relationship to strains obtained from another source was encountered. The influenza bacillus is a representative of a heterogeneous group of organisms possessing the common property of requiring hemoglobin for growth but differing in their antigenic properties, although immunologically identical strains may occur in the same patient and have been found in 27% of a small series of cases. These results lend no support to the view that the influenza bacillus of Pfeiffer is the cause of epidemic influenza.—Alan M. Chesney, *Jour. Inf. Dis.*, 29, 132 (1921).

✚

Food Accessory Factors in Bacterial Growth.—Pfeiffer's bacillus grows feebly on mediums containing unheated blood. Blood mediums heated to 60 C. or higher for definite periods of time yield profuse growth of the bacillus. Heating in the autoclave (120 C.) for a few minutes or at lower temperatures for longer periods renders blood medium incapable of growing Pfeiffer's bacillus. This superheated blood medium may be reactivated by adding to it plant, animal and bacterial extracts and filtrates which by themselves do not support growth of this organism. The latter substances lose this property on heating at autoclave temperature for a few minutes or at a lower temperature for longer periods. The growth process of Pfeiffer's bacillus may be represented thus: plain medium plus heat resistant substance (hematin or derivative) plus heat labile substance equals growth of Pfeiffer's bacillus. The phenomenon of satellitism as observed in connection with Pfeiffer's bacillus is described in detail. It is observed in association with bacteria, yeasts and fungi of various kinds and their filtrates; also with plant and animal tissues and their extracts and filtrates. Heating in the autoclave (120 C. for 30 minutes) will destroy the activities of these substances. Heating for longer periods at lower temperatures will do likewise. On clarified autoclaved blood medium Pfeiffer's bacillus will not grow. On plain medium, to which organisms or tissues or their filtrates (hemoglobin free) are added, it will not grow. When these substances are mixed good growth results. The explanation of satellitism therefore would seem to be: Diffusible products or extracts of bacteria, fungi tissues, etc., stimulate the growth of Pfeiffer's bacillus in conjunction with hematin or with hemoglobin. Thus, profuse growth of Pfeiffer's bacilli occurs immediately around colonies of organisms or pieces of plant or animal tissue. The satellite phenomenon is of value in identifying and in classifying members of the hemophilic group. Its value depends on the fact that Pfeiffer's bacillus is not favorably influenced in its growth by hemologous or heterologous strains, while apparently all other strains of hemophilic organism reveal this phenomenon.—David J. Davis, *Jour. Inf. Dis.*, 29, 171 (1921).

✚

Human Central Nervous System in Botulism.—Bacillus botulinus produces a poison which is highly toxic to man and animal. The changes are confined to the vascular system. Thrombosis in arteries and veins is the initial change followed by ischemic necrosis and later by inflammation. The poison has no direct action on the nerve cells; the retrogressive changes are secondary and due to the disturbed blood supply. The ganglion cells of origin of the motor cranial nerves are always involved because their blood supply is derived from terminals of branches of the vertebral arteries which seem to be the seat of predilection of the thrombosis.—C. B. Semerak, *Jour. Inf. Dis.*, 29, 190 (1921).

✚

Acid-Fast Saprophytes Resembling Tubercle Bacilli.—The author reports as the result of his experiments that he found that cultures of so-called trumpet bacilli and tubercle bacilli of turtles, and other cold-blooded animals, which were recultivated from induced foci in guinea pigs and white mice, did not prove to be more virulent toward the said experimental animals than the primary strains. The further inoculation of healthy animals with virus from the pathologic foci, which contained numerous bacilli, did not result in an increased virulence of the bacteria.—B. Lange, *Deutsche Med. Wochenschrift*, 47, 528 (1921); *Jour. A. M. A.*, 77, 161 (1921).

Minimums and Maximums in Tuberculosis Control.—The author discusses certain fundamentally significant findings based on the observations made possible by the extensive medical machinery in connection with the Framingham Community Health and Tuberculosis Demonstration.

(1) The minimum number of cases in the average community that will probably escape detection in an early stage of the disease in spite of reasonably adequate machinery. This was found to be 14 per cent. In most communities at the present time about 50 per cent of the cases are discovered as advanced.

(2) The minimum number to die in a representative group of tuberculous individuals. From the Framingham experience it would seem that a minimum of 16 per cent would represent the figure that might be expected to die in a typical tuberculous group, including all kinds and stages of tuberculosis, after fairly complete treatment procedures, during a period of four years.

(3) The maximum number that may be reported before death. During the last two years of the demonstration it has been possible, by encouraging reporting in all possible ways to increase this figure to 93 per cent.

(4) The extent of tuberculosis in the population. The average normal American community is at the present time aware ordinarily of three to five known active cases for each annual death. At the beginning of the demonstration the ratio in Framingham was three to one. An intensive search with new machinery for discovering cases, during the first year, increased this ratio to 9 to 1.

(5) The minimum number of cases needing sanatorium treatment. In Framingham at the beginning of the demonstration about 15 per cent of the cases were receiving institutional care. For the first three years of the demonstration this percentage was increased to 33 and in 1920 the figure was 24 per cent.

(6) The minimum number of beds required for tuberculosis treatment. Framingham, during the demonstration, has been using from one to two beds in institutions for treatment of active tuberculosis, in ratio to every annual death.

(7) Minimum mortality rates. The Appraisal Committee which studied the Framingham work stated that for a period of five years a rate which averaged below 90 per 100,000 would be significant as reflecting directly the special efforts to decrease tuberculosis.—D. B. Armstrong, *Amer. Jour. of Hygiene*, May, 1921. 278. (*D. G.*)

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Child Hygiene in Canada.—"Each year in this country (England) about 100,000 babies die before they come into the world," according to John Galsworthy in a little article, "A Thought for the New Year," in *Child Health Studies* in Montreal and the province of Quebec, published by the Child Welfare Association of Montreal. "Out of 800,000 born," Mr. Galsworthy continues, "about 90,000 die, damaged in health by evil birth conditions. One in four of the children in our elementary schools are not in a condition to benefit properly by their schooling. What sublime waste!"

Of more direct Canadian concern is a description of "The Eastern Townships Child Health Drive." This is based on the results of a child health survey. Other articles are "Minimum Health Requirements for Rural Schools" and several reprints from Canadian newspaper articles on health subjects.—(*M. B. D.*)

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Child Welfare in Belgium.—Through the second International Conference on the Protection of Childhood, held at Brussels from July 18 to July 21, the attention of the world has been called to the program Belgium is working out for the conservation of childhood. Of timely interest is an article by Dr. René Sand of the University of Brussels, recently received by the U. S. Department of Labor through the Children's Bureau. How intelligence, determination and united effort triumph over conquest, war and famine is vividly portrayed in this discussion of "Industrial Medical Reconstruction in Belgium," which appeared in *Living Medicine*.

Even during the years of occupation, when the government had left the Belgian soil and the only central coördinating agency was the voluntary "Comité National," public health activities were started on a hitherto unknown scale, and for the first two years there was an actual decline in infant mor-

tality. Dr. Sand accounts for this in part by the cessation of industrial work for women. The Children's Welfare League, which had begun to function to a limited extent before the war, developed in the midst of the most difficult circumstances until even the smallest village was reached.

In spite of these efforts, the average child was, at the time of the armistice, one full year backward in normal development; the weight of the average Brussels schoolboy was three pounds below normal, and of the average school girl, seven pounds.

The first step in the medical reconstruction of industry was the establishment of an independent Labor Medical Service, which includes in its functions the protection of expectant and nursing working women and the care of the health of working children. The service immediately formulated a constructive program which enlisted the coöperation of all agencies concerned in the promotion of public health, including the health of working mothers and their children.

In the United States, 18 states provide for the physical examination of every child entering industry, but no state has provided for examinations of working children at regular intervals. Belgium has adopted the advanced program of a medical examination for every juvenile not later than a month after he has entered an industrial occupation, to be repeated once a year until the child reaches 18, and oftener in case of disease.

A national children's board has been established, which is maintained by public and private funds, and which supervises and supports child welfare organizations meeting certain conditions. The child welfare program includes the periodical free examination of children under three years of age brought by their mothers for examination; the establishment of free medical dispensaries for expectant mothers; the diffusion of knowledge relating to infant health and maternal nursing; and the supervision of boarded-out children under seven years of age. The cost of child welfare work will be borne one-half by the state, one-fourth by the province, and one-fourth by the municipality. Provincial and municipal boards are appointed by the national board, and advisory committees are provided for.

The Child and Social Service.—The author, who is president of the Hospital Social Service Association of New York, says that while the hospital may be a house of refuge for the treatment of certain diseases when home conditions are not favorable, the stay of a child here should be as short as possible. Children and especially infants do not respond well to prolonged hospital care. As soon as acute symptoms of disease have passed they should be discharged. Otherwise, there is apt to be a recurrence of the original disease or a development of a communicable disease or varieties of cross infection.

After many years of observation within and without the hospital the author believes that a great number of cases of illness in young children can be treated better at home if proper nursing is procurable. In work among sick infants and little children the hospital feature can be reduced to a small unit and more emphasis placed on home care. The educational value to the home of such service must not be overlooked, as the mother can learn much as to the future care and nursing of her family from these visits. In this way it is possible to raise the whole standard of their living. If every infants' or children's hospital would thus reduce its inside work to a comparatively small unit, retaining its full medical and nursing staff to operate largely in the homes that supply the hospital the best and most far-reaching results would be obtained with the least expense.—H. D. Chapin, *Jour. A. M. A.*, July 23, 1921, 279. (*D. G.*)

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Pan-American Union Issues Health Bulletin.—The Pan-American Union has issued a special bulletin, dated September, 1921, entitled "A Saude Publica em alguns de seus Aspectos Hodiernos," which is the Spanish for "Public Health in Some of Its Modern Aspects." The bulletin is in Spanish and contains five articles by members of the United States Public Health Service. These include "The Campaign Against Malaria in the United States," by Surgeon General H. S. Cumming; "Plague," by G. W. McCoy; "Pellagra," by Dr. Joseph Goldberger; "Typhoid Fever," by Dr. L. L. Lumsden; "Tuberculosis," by Dr. F. C. Smith; "Smallpox," by Dr. J. N. Force, and "Serums and Vaccines," by Dr. J. P. Leake.—(*J. A. T.*)

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